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ABSTRACT

The mission of the Far West Consortium for DD&E training is to design, develop, implement, and evaluate a comprehensive and transportable training program to meet the demand for trained personnel in educational development, dissemination, and evaluation (DD&E). The program provides both preservice training and continuing education to upgrade those already employed in the field of educational research and development. The content of training has been derived by assessing personnel training needs and conducting task analyses. Training is organized around 8 functional competence areas: (1) planning and design; (2) collection and organization of information and data; (3) communication skills; (4) developmental engineering; (5) evaluation; (6) problem analysis and definition; (7) dissemination and marketing; and (8) management. In addition to the main report, a volume of appendices presenting such items as descriptions of competence areas, resumes of professional personnel, and trainee information and 2 attachments presenting the approach to competence assessment and the program of instruction are also included. (Author/HS)

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ANNUAL REPORT

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DESIGN OF A FUNCTIONAL COMPETENCE TRAINING PROGRAM FOR DEVELOPMENT, DISSEMINATION AND EVALUATION PERSONNEL AT PROFESSIONAL AND PARAPROFESSIONAL LEVELS IN EDUCATION

Volume I

Paul D. Hood
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January 31, 1973

The research reported herein was performed pursuant to a contract with the National Institute of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to freely express their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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Task Force on Researcher Training

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ABSTRACT

The mission of the Far West Consortium for DD&E training is to design, develop, implement, and evaluate a comprehensive and transportable training program to meet the demand for trained personnel in educational development, dissemination, and evaluation (DD&E). The program provides both pre-service training and continuing education to upgrade those already employed in the field of educational R&D. It is designed to operate within the context of the jobs for which it is preparing trainees. It has been deliberately designed to be flexible and adaptable so that it can be implemented in a variety of settings. The Consortium, which has been in existence for almost two years, will continue as a training development consortium until Fall 1974, at which time the training program and materials developed will be ready for dissemination and utilization.

The content of training has been derived by assessing personnel training needs and conducting task analyses. The design of training follows a functional-context approach. Formal training at colleges or universities in conjunction with Engineered Internships at educational R&D agencies will lead to the MA degree. The continuing education program for practicing DD&E personnel is provided for professionals at the entry level. Work was also begun on development of a parallel paraprofessional program leading to an AA degree. Because of resource limitations and the current low demand for paraprofessionals in DD&E, work has been suspended on this part of the project.

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Training is organized around eight functional competence areas: (1) planning and design, (2) collection and organization of information and data, (3) communication skills, (4) developmental engineering, (5) evaluation, (6) problem analysis and definition, (7) dissemination and marketing, and (8) management. Competence assessment instruments pertinent to the eight functional competence areas are also being developed and validated.

PREFACE

This document provides both a progress report and a projection of future accomplishments of the Far West Consortium. While using this report, the reader should also consult the design document submitted to the Research Training Branch at the end of 1970: Hood, Banathy, Ward, et.al., Design of a Functional Competence Training Program for Development, Dissemination, and Evaluation Personnel at Professional and Paraprofessional Levels in Education.

This report is organized in two volumes. Volume One contains two main sections: Summary of Consortium Accomplishments 1972, and Work Plans for January 1 - May 31, 1973. Volume Two includes the appendices which supplement Volume One.

All Consortium members have contributed to this report, but we would like to acknowledge our special appreciation of Dr. George Hallowitz of California State University at San Francisco, James Dunn of AIR, and Robert Bennett of San Mateo Community College District for serving as members of the Consortium Planning Committee.

We would like to acknowledge the help of Joe Ward, Wayne Rosenoff, Freeman Elzey, and John Hourigan of the Instructional and Training Systems Program of the Far West Laboratory. Special thanks to Nelly Sampson, Anne Macahilig, and Diana Studebaker for their editorial, coordination, and supervisory efforts in the preparation of the report.

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THE FAR WEST CONSORTIUM: AN OVERVIEW

The mission of the Far West Consortium for DD&E Training[1] is to design, develop, test, and evaluate a comprehensive and transportable training program to meet the demand for trained personnel in educational development, dissemination, and evaluation (DD&E). The program provides pre-service training and in-service training (continuing education) to upgrade the skills of those already employed in educational R&D. It is designed to provide learning opportunities directly related to the trainee's present or projected vocation. Since the program is both flexible and adaptable, it can be implemented in a variety of settings.

The Consortium, formed almost two years ago, plans to continue as a training development group at least until Fall 1974. At that time, the training program and materials described in this plan will be developed and ready for national dissemination and utilization.

The program is producing and field testing a series of training modules for each of eight educational DD&E competence areas: (1) Planning & Design; (2) Information/Data Collection & Organization; (3) Communication Skills; (4) Developmental Engineering; (5) Evaluation; (6) Analysis & Definition: (7) Dissemination & Marketing; and (8) Management. Modules developed in these competence areas can be used flexibly to meet specific individual training needs.

To avoid duplication of effort, already developed instructional materials that fit into the DD&E competence scheme will be selected from other sources and included in the instructional program. An example is the Educational Information Consultant Instructional System[2].

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[1] A list of Consortium members will be found in Appendix A.

In place of traditional lectures and class meetings, the trainee in this program works with the learning episodes presented in the modules, performs activities and exercises, uses resources available in a learning laboratory, and works with other trainees. An Instructional Resource Manager functions as a guide and resource person rather than as a "teacher."

Whether pre-service or in-service, each trainee participates in an Engineered Internship. This internship, integrated closely with the "academic" training, provides the trainee with an opportunity to apply the skills he/she is acquiring in an actual DD&E work situation. The internship program is developed jointly by the trainee, the Instructional Resource Manager, and the trainee's work supervisor. All three meet periodically to plan and evaluate the trainee's progress. In the pre-service program, this joint planning and evaluation effort requires the academic institution to join forces with an R&D agency, bridging the gap between the academic and work domains. In the continuing education program, an R&D agency can sponsor its own program or cooperate with an academic institution.

The Competence Assessment System includes instruments, criterion-referenced to the competence areas, to determine the trainee's competence both before and after training. The Competence Assessment System also provides means for certifying competence without formal training.

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[2] An instructional program developed by Far West Laboratory consisting of seven modules that develop competence in disseminating educational information, see Appendix L.

Consortium activities began in 1970. Studies of national R&D personnel requirements were analyzed[3] and an empirically derived need-assessment base ascertained what types and quantities of personnel would be required in the next few years in the field of educational R&D in general and in the Far West Consortium's geographic region in particular. In addition, studies were made of the structure of DD&E jobs to assure that the training would be relevant. Design of the DD&E training program was completed late in 1970[4].

The Consortium began its operations in February 1971, with developmental work to implement the design. A test site for the pre-service program was established at the California State University at San Francisco (CSUSF) where an MA degree program was initiated with concentration on educational DD&E. As training materials were developed, they were introduced and prototype tested during Fall 1971 and Spring 1972. During Fall 1972, testing of newly developed materials continued and prototype testing of the Engineered Internship was begun.

Work was also begun on the development of a parallel paraprofessional program in cooperation with Cañada Community College. However, the cost of fully developing high-quality, validated, and transportable materials for both the entry-professional level and the paraprofessional level programs now appears to exceed immediately forseeable resources. Moreover, the current demand for paraprofessionals in educational DD&E is not great. Therefore, the paraprofessional program has been assigned a much lower priority. Its further development will be accomplished only if the requisite paraprofessional instructional resources are direct by-products of the development of entry-professional materials and if the full development of the entry-professional program will in no way be jeopardized. Furthermore, in order to concentrate on the entry-professional program, the design of an advanced level program, initiated in 1972, will also be discontinued.

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[3] A summary of studies is presented in Appendix B, Rationale for DD&E Training.

[4] Hood, Paul, et al, Design of a Functional Competence Training Program for Development, Dissemination and Evaluation Personnel at Professional and Paraprofessional Levels in Education, Volumes One and Two, Berkeley, California: Far West Laboratory for Educational Research and Development, 1970.

Section One: SUMMARY OF 1972 CONSORTIUM ACCOMPLSIHMENTS

I. Analysis of Projected Impact

II. 1972 Accomplishments

I. AN ANALYSIS OF PROJECTED IMPACT

This analysis deals with the projected impact of the Functional Competence Training Program on education and R&D training.

A. General Levels of Impact

We will discuss the direct and derived effects of the Functional Competence Training Program on immediate, intermediate, and ultimate target groups.

Immediate target group: direct effect. Our knowledge of the extent to which the DD&E program has effected the trainees' mastery of R&D skills will depend on the validity of measurement attained through use of the Competence Assessment System. A description of this system and sample competence assessment instruments are included in Attachment One.

Immediate target group: derived effect. The degree to which the immediate target group has acquired competence in DD&E skills will be determined not only by assessing the direct effect of the training as evidenced by the trainee's gains in knowledge and skills, but also by the derived effect which is manifested in the trainee's application of learned competencies on the job. The Competence Assessment System will provide methods for making these assessments.

Intermediate target group: derived effect. The intermediate target will be the agencies employing personnel trained by the program. It is anticipated that the availability of personnel with certified competence will materially increase the efficiency of hiring and placement processes. An employee at the entry-professional level who has had pre-service training can be put to work almost immediately without spending much time on orientation and on-the-job training. This speed-up should result in more efficient use of the agency's time and money. Availibility of a program for continuing DD&E education should also make it possible for personnel already employed to acquire new skills or improve existing ones thus increasing their value to the agency and helping them fulfill career aspirations.

Moreover, for those agencies providing internships for DD&E trainees there may be more subtle effects. It is possible for a trainee's presence in an agency to have effects which radiate out from his training situation through the ranks of the personnel who must analyze and re-examine their own tasks and organizational requirements in order to work out suitable internship experiences for the trainee. This would be especially true for the trainee's work supervisor. More specifically, the work supervisor will have to consider organizational priorities and requirements, and analyze the various tasks his/her group is involved with in order to identify those tasks that are best suited to the trainee's application of competencies acquired in the training program. Furthermore, the supervisor is asked to monitor the trainee's application performance systematically on a regular basis. Although these requirements involve no more than good supervisory practice in work planning, supervision, instruction, and performance review, they are not commonly encountered in many R&D agencies.

Another intermediate target group includes those institutions engaged in training educational R&D personnel. The program offers them an organized and validated set of materials and procedures for the training of R&D personnel, serving existing and future training requirements that face these institutions of higher learning.

Ultimate target group. For any project that trains personnel who will be involved in educational development, the ultimate target group includes the students or school personnel who will be using the R&D products that emanate from the development agencies. It is expected that increased efficiency in training DD&E personnel will result not only in an increased capability in development, dissemination, and evaluation, but in more effective educational solutions and higher quality educational products.

B. Impact of R&D Training

1. Need for and Use of Training by Target Groups

Two major sources suggest a need for the training programs produced by the Far West Consortium. The first is the changing attitude toward support of educational R&D enterprises as pointed up by the formation of NIE. This new agency reflects a general political recognition that improvements in educational practice depend on a concerted and consistent effort extending over long time periods, rather than "crisis" or "crash" programs. This support should provide encouragement for R&D agencies, and give the development, dissemination, and evaluation aspects of R&D

greater professional appeal. Many of those now involved in "pure" research in universities may be attracted to these areas in R&D centers and educational laboratories (Schutz, 1972).

The second indication of the potential usefulness of Consortium programs stems from the growing need to decrease the cost of higher education for both learner and institution. At present, these costs seriously tax the universities' capabilities; however, there are a number of new and promising design concepts and training practices emerging which may help solve the problem. Many of these new characteristics are incorporated into the design of the Functional Competence Training Program, including:

a. Recognition that the direction of the individual learner's activity should be determined by personally relevant goals. This notion implies that any and all available resources may be legitimately tapped, no matter where they are located. Modern communication techniques offer the learner a multitude of resources; instructors, training materials, laboratories, etc., are among the many he draws upon. The notion of "universities without walls" reflects and reinforces this concept.

b. The development of validated, transportable instructional systems will offer a convenient, self-contained curriculum suitable to a wide range of learners. These systems, such as those being developed by the Far West Consortium, are modular in format, thus flexible. They are self-paced, individualized, and accompanied by appropriate assessment devices. They may well supply more cost-effective instruction than the traditional class instruction mode.

c. A third important concept is the learner performance-oriented approach. Learners are beginning to ask their training institutions just what they will be learning, what they will be able to do when they have completed the learning experience, and how the learning experience relates to their personal goals and needs. The DD&E programs, specifically designed to answer such questions, should prove more attractive than most traditional curricular offerings.

d. Other characteristics of the DD&E program that should enhance utilization include: organization of "banks" of modules and instructional resources; structuring instruction into preparation, intensive learning, and application phases; and availability of alternative delivery modes such as pre-service, continuing education, institute, and workshop forms. These characteristics have great potential to influence other training models in the educational field.

More important than the single items mentioned above is the combined effect emerging as components with the characteristics described above are brought together within the systematic framework of an overall training design and are implemented as a full-scale training program.

2. Projection of Use

A projection of the potential use of Far West Consortium materials is offered here in terms of the kinds of products under development.

Training materials. The potential use of training materials is projected at three levels:

a. The comprehensive Functional Competence Training Program offers the highest level of use. This program is expected to be used in both pre-service training and continuing education. With aggressive "marketing" somewhere between 10 and 20 state colleges, universities, and private colleges can be expected to adopt the comprehensive pre-service entry-professional (MA) system during the first two years following release in 1974, with a potential user group of 100 to 250 students. Similarly, extension programs and continuing education programs could serve an additional 100 to 200 students employed in R&D agencies. The training content of the Functional Competence Training Program can be presented in other delivery forms, such as workshops, summer institutes, seminars, and pre- or post-conference sessions.

b. Training modules are grouped by design into competence areas, called series, and can be combined into a variety of "packaged" module clusters. Formation of module clusters within series and across series, tailored to the particular needs of the trainee, provides a wider area of application for these materials. Potential users of such "packaged" programs will include (a) college and university schools of education, (b) private and public educational R&D agencies, and (c) state, regional, and federal educational agencies interested in staff development. The number of potential users for these packaged module clusters (used in workshops, institutes, individually, etc.) may range from 100 to 300 in the first two years of dissemination.

c. The smallest unit of the DD&E training materials is the module. We plan to produce more than 30 modules at the entry professional level. Purchasers of modules may include: (a) libraries at most schools of education and at federal, state, and intermediate educational agencies;

(b) educational R&D centers and laboratories; (c) schools of education which would use the modules as instructional materials; and (d) non-educational R&D agencies. Depending on the scope and intensity of the dissemination effort, a potential demand for 100 to 500 copies of each of the individual modules would be a reasonable estimate during the first two years of dissemination. One library copy of a module can, of course, be "used" by multiple borrowers.

Guides. Support materials, including guides to the (a) Instructional System, (b) Quality Control of the Instructional System, (c) Pre-service Program implementation and (d) Continuing Education Program implementation, and catalogs of instructional resources and of competence assessment instruments are being developed to support the comprehensive use of the Functional Competence Training Program (item (a) above). A detailed description of each of these items will be found on pages 60 to 68 of this report.

Competence assessment batteries. Another facilitative device to encourage broad utilization is the Competence Assessment System, which provides individuals, R&D agencies, and training institutions with a method of assessing competence in the technical areas of educational DD&E. The system delineates DD&E competencies by level of proficiency, provides methods for assessing competence in trainees, and suggests criteria for certifying competence. A validated system of competence assessment has a utility far beyond its use with the Instructional System. It can become an instrument that employers can use to screen applicants, to place new employees, to assign employees to tasks, to identify employee competence deficiencies, and to plan a personnel development program. It is anticipated that, during the first two years of dissemination, 15 to 30 agencies will make some use of the competence assessment batteries.

3. Uniqueness of Programs and Materials

In addition to the design characteristics and practices reported in the first part of this section, there are four unique aspects of our program.

Functional competence base. The design of instruction and the objectives specified in each of the learning episodes have a skill-related focus. This orientation is, perhaps, the most noteworthy feature of the DD&E training. Role-relevant competencies are identified prior to the development of instructional resources. Careful empirical analysis of the DD&E task list, obtained in preliminary studies, serves as the foundation on which performance objectives and learning episodes are built. Purposeful activities, sequenced in time and organized into a situational scheme, can be planned so as to become the learner's own program. The individual will operate his/her own learning system, will always know what activities he/she is now and will become involved in and why, will perceive how far he/she has advanced at any given time, and will understand what has yet to be achieved to give evidence of additional progress.

The Engineered Internship. The concept of the Engineered Internship will place the learner, his Instructional Resource Manager, and his work supervisor in a new and unique relationship, far removed from the traditional student role. The functional context of a job combined with flexibly scheduled, self-administered, job relevant instruction puts the highest possible emphasis on the trainee's acquisition of competencies that should be useful in his/her job and that are important to the trainee. With the help of two experienced and interested people, the learner can select and then master those competence elements, sets, and subsets which will be of greatest benefit to him/her. The work he/she does is not forced into the rigid semester/quarter mold of an on-campus course. The trainee progresses at his/her own speed, may work full or part time, and may apply previously learned skills to gain academic credit. All this will occur within the general context of applying each competence element to real problems, tasks, or projects. The Engineered Internship will help bridge the gap between academic and on-the-job learning, incorporating many factors recommended in exemplary training designs. Its conceptual strength and consistency appeal to learner, teacher, and work supervisor.

Materials development. The development of instructional resources for the achievement of competence in DD&E follows a materials development cycle through which the Far West Laboratory has carried many products to national attention and use. Careful formulation is made of specifications and criteria for judging the adequacy of the learner's response. Prototype, field, and operational forms are developed and tryouts conducted, accompanied by continuous assessment activities. The materials produced by the Consortium will be developed to a point where they will be ready for extensive operational testing.

Making use of other learning resources. The many projects funded over the past few years by the Research Training Branch (now NIE/TFRT) offer additional DD&E-focused learning resources. If they are within the scope of our competence sets, all such materials, regardless of source, may be incorporated into our training system. Efforts will be made to avoid duplication of effort and redundancy.

4. Efforts to Develop Cooperation among R&D Training Projects

One significant outcome, going beyond this Consortium project, has been the interaction among project staffs in the three model consortia and other research training projects. During the year, visits and exchange of information and materials have intensified interaction among the three Consortia. Glen Heathers of the Pittsburgh Consortium has visited our program and discussed with us mutual use of materials. Dan Stufflebeam of the Ohio State Consortium visited twice and has been involved in the critique of our Evaluation Series. Of other research training projects, we have had direct exchange with Michael Scriven of the University of California, Berkeley, and Skip McCann of the UCLA training project. The conference of Consortia and research training project staffs co-sponsored by the three Consortia, held in December, 1972, at the Ohio State University, gave impetus to this growing cooperation. The R&D training information system under design at Far West Laboratory may facilitate continued coordination and exchange of information and materials.

II. 1972 ACCOMPLISHMENTS

The goal of the Far West Consortium is to develop and validate a transportable, competence-based system for the training of entry-level professionals in educational development, dissemination and evaluation (DD&E). To reach this goal, five tasks must be performed:

1. Systems Development. Development of the Instructional System, the Competence Assessment System, and the Quality Control Stystem.
2. Product Development. Development and validation of the materials and instruments that provide the resources for the Instructional and Competence Assessment Systems.
3. Training Implementation. Creation of suitable test conditions in which training can be implemented and evaluated.
4. Dissemination/Utilization Planning. Planning and arranging for the dissemination and utilization of the products and systems that have been developed.
5. Project Management. Management of the four tasks described above.

1972 accomplishments are reported within the structure of the tasks outlined above.

TASK ONE: SYSTEMS DEVELOPMENT

Systems development involves the conceptualization, design, formative development, field testing, evaluation, and revision of the Functional Competence Training System. The operational model of the training system is displayed in Figure 1 on the next page. The central scheme of the model is presented in the upper right section of the figure. The scheme projects the interface and interaction of the learner system, the instructional resources and the application systems. The individual enters the training system by planning his/her program with the Instructional Resource Manager and the work supervisor. Competence is acquired as the trainee, guided by the Instructional Resource Manager, completes selected modules and, he/she then applies these competences to the job, under the guidance of the work supervisor.

The instructional resources are developed to satisfy the requirements specified for the competence sets, subsets and elements constituting the basis of the Instructional System. The same competence sets, subsets, and elements also provide the basis of development of the competence assessment batteries, sub-batteries and items that constitute the Competence Assessment System.

The Functional Competence Training System: Entry Professional Level

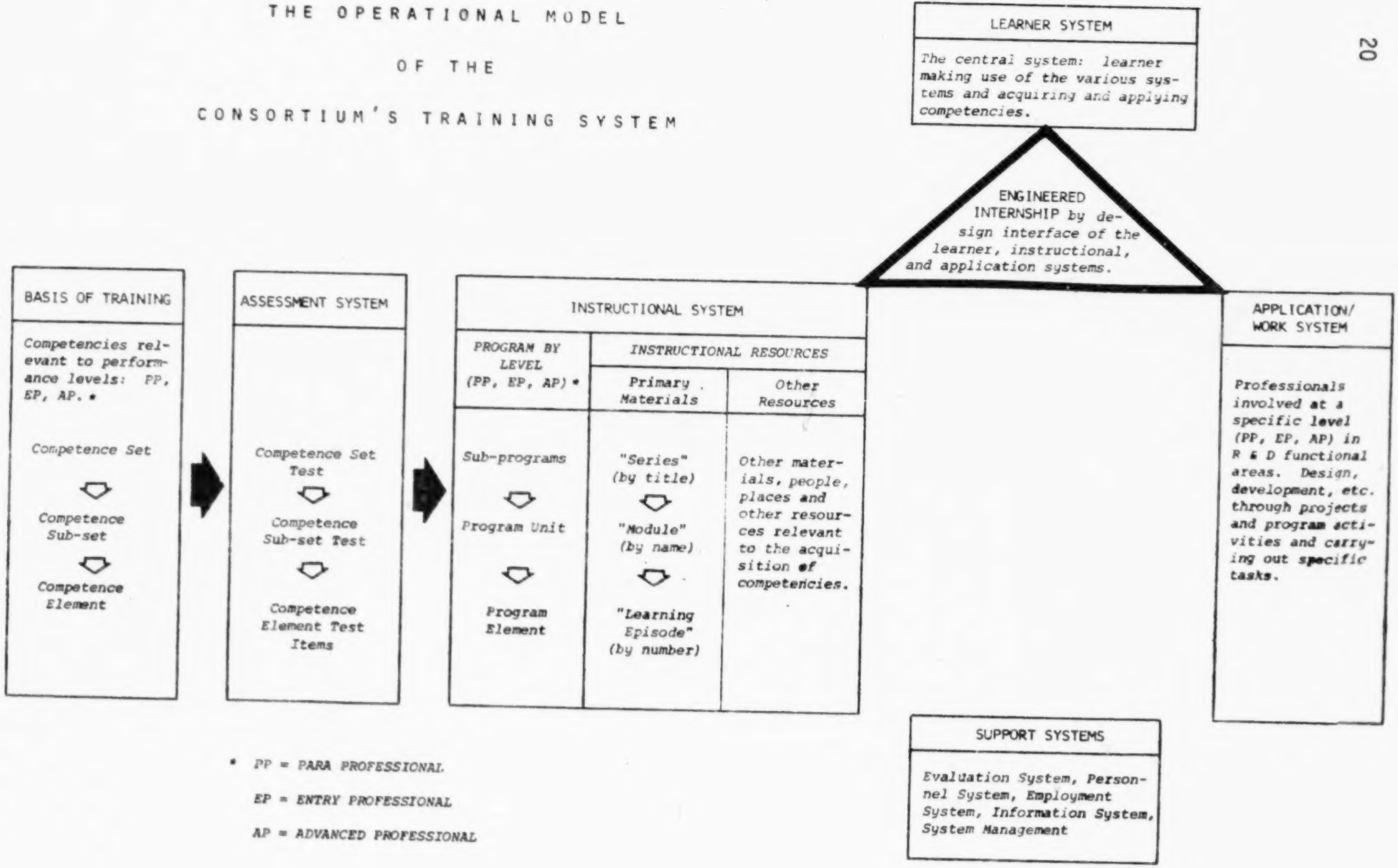
The Functional Competence Training System is designed to provide users with instructional resources and procedures needed to acquire technical skills in the following competence areas: Planning and Design; Information/Data Collection; Communication Skills; Developmental Engineering;

Figure 1.

THE OPERATIONAL MODEL

OF THE

CONSORTIUM'S TRAINING SYSTEM


LEARNER SYSTEM
The central system: learner making use of the various systems and acquiring and applying competencies.
ENGINEERED INTERNSHIP by design interface of the learner, instructional, and application systems.
BASIS OF TRAINING
Competencies relevant to performance levels: PP, EP, AP. *
Competence Set
Competence Sub-set
Competence Element
ASSESSMENT SYSTEM
Competence Set Test
Competence Sub-set Test
Competence Element Test Items
INSTRUCTIONAL SYSTEM
PROGRAM BY LEVEL (PP, EP, AP) *
INSTRUCTIONAL RESOURCES
Primary Materials
Other Resources
Sub-programs
Program Unit
Program Element
"Series" (by title)
"Module" (by name)
"Learning Episode" (by number)
Other materials, people, places and other resources relevant to the acquisition of competencies.
APPLICATION/ WORK SYSTEM
Professionals involved at a specific level (PP, EP, AP) in R & D functional areas. Design, development, etc. through projects and program activities and carrying out specific tasks.
SUPPORT SYSTEMS
Evaluation System, Personnel System, Employment System, Information System, System Management

* PP = PARA PROFESSIONAL

EP = ENTRY PROFESSIONAL

AP = ADVANCED PROFESSIONAL

Evaluation; Analysis and Definition; Dissemination and Marketing; and Management. (A description of the competence area is provided in Appendix C). The minimal level of competence has been set equal to that of a DD&E junior professional with an MA degree and one year of DD&E experience or of someone with a BA degree and two to three years DD&E experience. The training system provides opportunities for application of acquired competence in the real contexts of DD&D through the Engineered Internship and for assessment and certification of the attained competence.

Developing a flexible approach. While the design and training has, of necessity,been influenced by institutional constraints, emphasis has been on attempting to change academic institutions to test the training and designed. This is seen in attempts to move away from structured "courses" and allow students flexibility in selecting instructional materials covering competence related to their job requirements. Negotiations with California State University at San Francisco (CSUSF) have resulted in decisions permitting students to select modules from various functional context series. Modules have been assigned credit hours so that all that is required is that sufficient modules will be selected to satisfy the institution's course requirements (three hours per course). Arrangements have also been made which will permit students to receive one credit hour per application of competencies on the job for each course. Although these arrangements may seem trivial, they represent a major step for the academic institution.

Engineered Internship. The Engineered Internship program is the key operational element of the training system. Prototype testing of the Engineered Internship program was initiated at CSUSF in Fall 1972 with 17 newly enrolled students and 14 continuing students. The heart of this program is the functioning of the triad of trainee, Instructional Resource Manager (IRM), and the work supervisor. The IRM guides the operation of the triad. A more detailed description of the Engineered Internship is found on page 14 of the Analysis of Projected Impact.

Instructional Resource Manager's Guide. During Summer 1972, the initial form of the Instructional Resource Manager's Guide was developed. This guide is a comprehensive manual designed to instruct the Instructional Resource Manager (IRM) in his role of implementing the DD&E training system. The guide explains this unique training system, and specifies responsibilities the IRM has to the trainee and work supervisor.

The Guide has four parts. Part I describes the role of the IRM, explains the DD&E training system, and details the IRM's responsibilities. Part II describes procedures for assessing student competence. Included is a Student Competency Matrix which graphically connects required competence with appropriate modules. Examples are given to illustrate use of this matrix. Part III is the Internship Monitoring System. It explains how to determine trainee needs and how to prepare "work plans" with trainees and work supervisors. Sample forms for these evaluation and monitoring procedures are included. Part IV is a Catalog of Instructional Materials in three sections. Section A lists the instructional materials available to the IRM and trainee. These materials include not only the modules of program materials, but also related and accessory materials. Section B is an overview of each module, Section C is a detailed description of each module.

Other Guides. Based upon initial use of the Instructional Resource Manager's Guide during Fall 1972, the decision was made to replace it with a set of guides and catalogs for a variety of uses. As planned these will include the Guide to the Instructional System, Catalog of Instructional Resources, Guide to the Implementation of the Pre-service Program, Guide to the Implementation of the Continuing Education Program, Guide to the Competence Assessment System, and the Catalog of Competence Assessment Instruments. These guides and catalogs are described in the 1973 Work Plan.

Evaluation. During the year we have evolved a functionally differentiated scheme of evaluation. Accordingly, evaluation concern subsumes (1) the formative evaluation of instructional materials, (2) the formative evaluation of the Engineered Internship, (3) the assessment of student competence, and (4) the quality control of both the Instructional and the Competence Assessment Systems.

Formative evaluation of instructional materials. Analysis of the prototype modules and examination of the procedures used to evaluate their adequacy have indicated a need to establish a more thorough method of providing data on the students' use of materials and other feedback to be used in revision. Accordingly, during 1972, a restructured formative evaluation system has been instituted which includes (1) the involvement of at least two subjects (representative of the student population) during the development of the prototype form of modules, (2) student feedback on quality and effectiveness of the modules. (Such feedback is acquired during prototype testing of the module involving at least five students and field testing with 10 to 20 users.) (3) Instructional

Resource Managers' evaluation of modules, (4) outside expert and (5) staff review of modules. Forms and guidelines have been developed to implement the procedures described here. A more detailed description of this procedure is reported on page 28.

Formative evaluation of Engineered Internship. A monitoring system has been implemented during Fall 1972 to provide formative evaluative information on the Engineered Internship. This system provides feedback on the functioning of the triad (trainee, Instructional Resource Manager, work supervisor), on the development of work plans for trainees, and on the degree to which modular instruction correlates with on-the-job experience.

Assessment of student competence. A major development late in 1972 was a move toward the construction of competence assessment instruments which will be used as both pre-and post-training means of assessing student competence in the competence areas. These instruments will also provide for the certification of competence without formal training. Organized into sets of batteries, the instruments will be applicable to specific competence areas and subsets of the instruments to particular modules.

First drafts of initial subsets of competence assessment batteries (module level) have been developed and a plan for validating and calibrating the instruments has also been prepared. For more details, see Attachment One.

Quality control. Quality control provides means and methods by which implementing agencies may monitor and evaluate the adequacy of use of the Instructional and Competence Assessment Systems. The quality control concepts we have developed call for construction of guides which specify (1) the questions that need to be asked about these systems, (2) the information and data that are to be collected, (3) the instruments with which to collect the information and data, and (4) the way to interpret the information and data once collected.

During the year, the evaluation activities of the project have been reviewed by Dr. George Temp, Dr. Daniel Stufflebeam, Dr. Maurice Eash, and by the site review team. (Comments of the consultants are reported in Appendix G.) These reviews have provided valuable assistance in the development of the new approaches to evaluation.

TASK TWO: PRODUCT DEVELOPMENT

Product development involves the specification, selection for design, formative development, field testing, evaluation, and revision of the materials and instruments constituting the required resources of the Instructional System and the Competence Assessment System. Accomplishments will be reported on the development of instructional resources and the development of competence assessment instruments.

Development of Instructional Resources

Instructional resources are now being developed at the entry professional level for six of the eight competence areas. The instructional materials for each competence area are called a series. The series are: (1) Planning and Design, (2) Information/Data Collection, (3) Communication Skills, (4) Developmental Engineering, (5) Evaluation, (6) Dissemination and Marketing. Planning for developmental work was started on two competence areas, Analysis and Definition, and Management. Series are made up of instructional modules, each of which focuses on a cluster of competence elements. Modules are referred to by numbers within their series -- Module 3.2 is the second module of Series 3, Communication Skills. Within modules, learning activities are grouped by episodes which attend to specific competence or skills within the set. Each episode has its own objectives, learning activities and progress checkpoints that allow the trainee, Instructional Resource Manager, and work supervisor to evaluate the trainee's progress. Typically, modules are designed to be self-instructional, but one trainee may also work with another or in a small group.

Modules are designed around specific performance objectives derived from both logical and empirical task analyses. They are designed to enable the learner to achieve a pre-determined level of competence. A definition of levels of competence appears in Appendix G . Each module is designed in relation to others in a series. In several modules, relationships across series have been incorporated, eg. "Planning for Evaluation" (Module 1.4 in the Planning and Design Series) is also an integral part of the Evaluation Series.

The specific developmental tasks are grouped into seven phases:

Phase 1. Prepare developmental plan for series,
assign competence,outline content.
Phase 2. Prepare prototype form.
Phase 3. Test prototype form.
Phase 4. Prepare field test form.
Phase 5. Test field test form.
Phase 6. Prepare operational form.
Phase 7. Disseminate operational form.

Phase 1 covers the design and organizational effort. It includes the allocation of competence identified in the initial Design Report and the Competence Matrix analysis and an outline of content developed by subject matter specialists, author(s), and product development staff. In this phase, authors receive a Module Developer's Kit which provides specific instructions and performance criteria for each facet of development.

Phase 2 of the production effort places the prototype form of the module in the hands of students and reviewers. During development of the prototype form, as parts of a module are developed, they are tried out with two or three trainees or subjects representative of the trainee population.

Phase 3 provides for prototype testing of the module with the involvement of five or more trainees, and includes such additional evaluative activities as reviews by content specialists, developmental staff and work supervisors.

Phases 4 and 5 repeat the revision and testing cycles. The revised module is given to 10 to 20 more users. Their evaluations form the basis for the final revision, Phase 6, and the printing and dissemination of the operational form, Phase 7. Note that operational testing in the sense in which that term is used by the Far West Laboratory is not provided[5].

During 1972, production control procedures have been revised and applied to provide better information on the status of modules under development. Tools have also been developed to implement procedures, such as the Module Review Checklist and Module Developer's Kit and styleguide.

The production control procedures include several specific checkpoints involving the analysis of student use data, consideration of the observations of the Instructional Resource Managers and work supervisors, and staff and expert review.

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[5] In the Far West Laboratory's development cycle, operational testing involves extensive field use without direct developer involvement. Time and resources available preclude this last step. All products will be developed up to a point where the operational form is ready for testing. An additional one to two years would be required to accomplish operational testing of all products.

Approaches developed to aid in monitoring developmental progress include the following:

a. A Module Developer's Kit, which accompanies author contracts or staff assignments, contains suggestions for establishing objectives, organizing content, preparing active-response exercises and progress checkpoints, and giving interpretations of student responses in feedback sections.

b. A 31-item Module Review Checklist that enables both Laboratory and outside expert reviewers to analyze each instructional product has been piloted, tested, and revised; it is now used routinely. This checklist standardizes examination, comment, and recommendations for each product. It gives authors further insight into specifications, evaluation techniques, and overall design requirements.

c. Guidelines for securing orderly, consistent application of the formats, structure, and nomenclature of the Consortium's products and a manual of style have been adopted to assure high quality in the copyediting of all publications.

d. A materials control specialist was employed in Fall 1972 to give direction to all phases of production, printing, and distribution, including copyright questions and graphics. This specialized function will greatly add to the acceptability and attractiveness of all products in the future.

e. Annual, quarterly, and monthly milestone charts, accompanied by progress reports to program and Laboratory management, help to prevent delays, to review progress frequently, and to pinpoint difficulties in early stages.

Status of Product Development

Accomplishments in product development are reported here relevant to the entry professional and paraprofessional programs. A comparative analysis of planned and actual accomplishments for 1972 are reported in Appendix K.

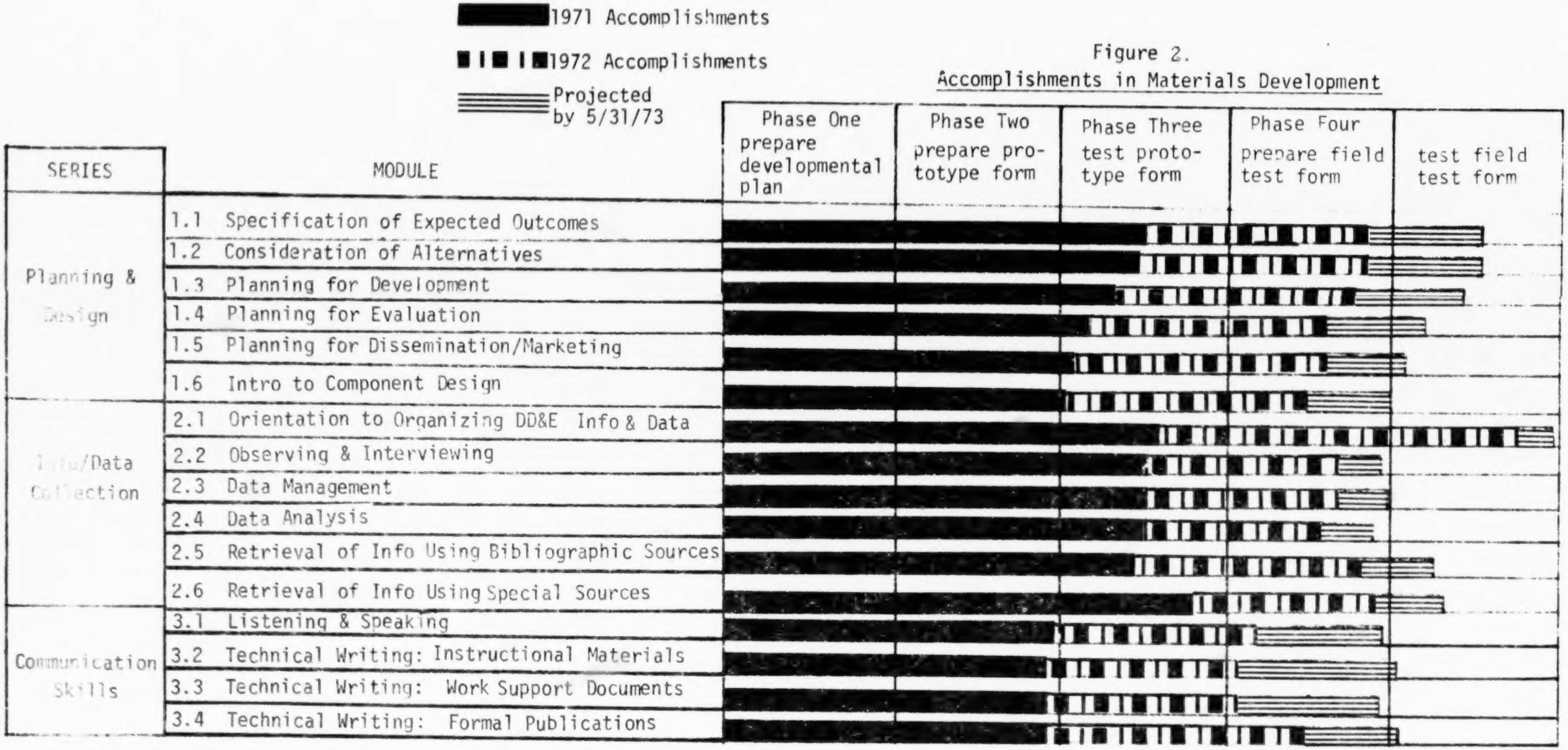
Entry Professional Program. Accomplishments at the entry professional level are shown in Figure 2. The figure provides a comparison of accomplishments by the end of 1971 and the end of 1972. It also gives a projection of status by May 31, 1973. A summary comment, by series, follows.

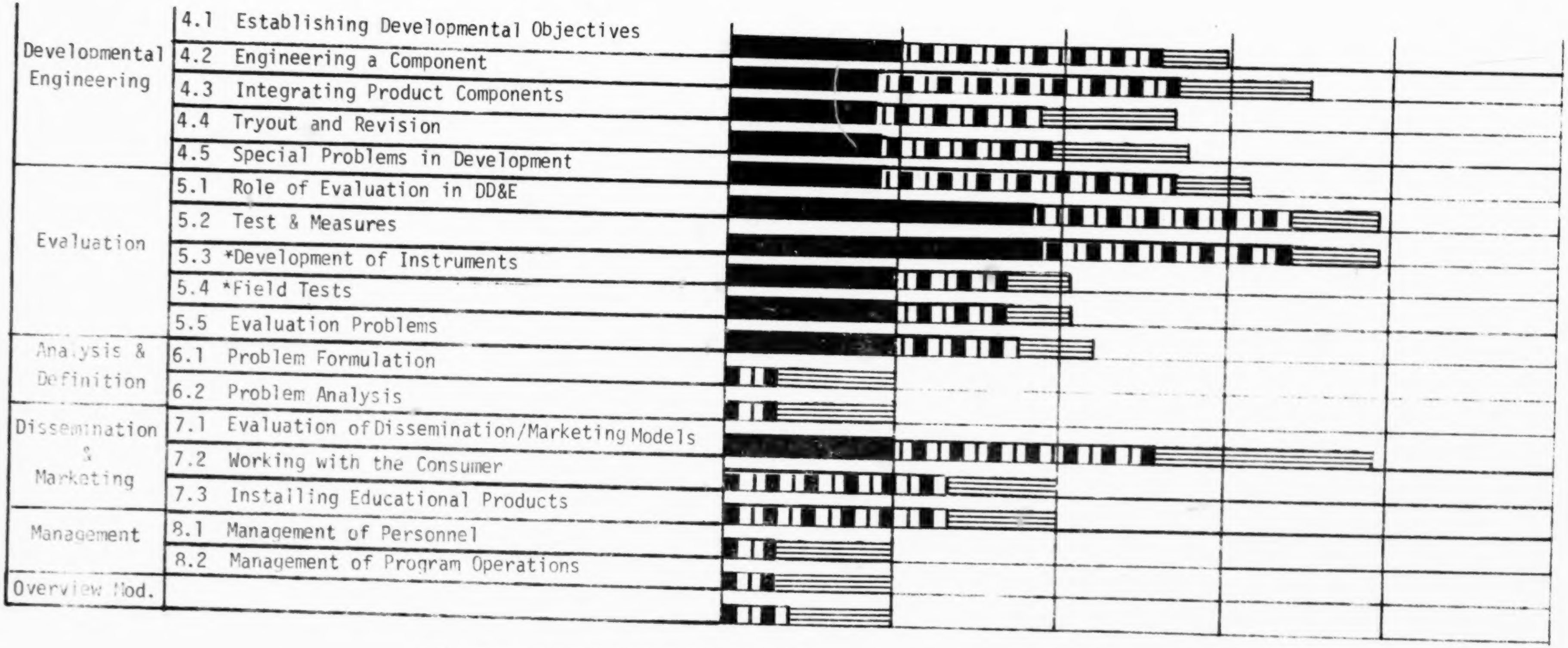
Series 1: PLANNING AND DESIGN. User information and staff review have indicated general adequacy of content. Series is now under revision for field test form.

Series 2: INFORMATION/DATA COLLECTION AND ORGANIZATION. User information and staff review have indicated general adequacy of the content of the modules in this series except 2.4, which will be redesigned. Module 2.1 is in field testing, the remainder of the series is now under revision for field test form.

Series 3: COMMUNICATION SKILLS. This entire series has been redesigned. The former Module 3.1, "Communication in a DD&E Agency", has been removed and will serve as a reference. Module 3.2, "Listening and Speaking," is now Module 3.1; Module 3.3, "Consumer-Oriented Information," has been subsumed under the Dissemination and Marketing Series; and Module

Figure 2.
Accomplishments in Materials Development





* These modules had been developed in a prototype form. Testing and review indicated a need for major redesign and the development of new prototype forms.

3.4, "Technical Writing," has been divided into three separate modules. The entire series is now under revision for field test form.

Series 4: DEVELOPMENTAL ENGINEERING. Review of prototype forms of modules in this series has indicated general adequacy of the content and methods of presentation. Module 4.3 will be redesigned to better meet specifications. Three modules are now in prototype testing; two are nearing completion of their prototype forms.

Series 5: EVALUATION. This series has been redesigned following prototype testing of Modules 5.1, 5.2, and parts of 5.3 and 5.4, and expert and staff review of the entire series. Two modules are in revision for field testing, three modules are in prototype development.

Series 6: ANALYSIS AND DEFINITION. This series is in the initial stage of planning for development.

Series 7: DISSEMINATION AND MARKETING. This series was redesigned to achieve a better correspondence with competence scheme and design specifications. One module is now in prototype testing, and two modules are in the initial stage of prototype development.

Series 8: MANAGEMENT. This series is in the initial stage of planning for development.

Paraprofessional Program. The following materials are available at the paraprofessional level:

Series 1: PLANNING AND DESIGN. Prototype forms of Modules 1.1, 1.2, 1.3, and 1.4 were developed and printed; prototypes of Modules 1.5 and 1.6 are in draft form.

Series 2: INFORMATION/DATA COLLECTION AND ORGANIZATION. Prototype forms of six modules were developed and printed.

Series 3: COMMUNICATION SKILLS. Prototype forms of four modules were developed and printed.

Series 4: DEVELOPMENTAL ENGINEERING. First drafts of prototype forms of five modules are developed.

Series 5: EVALUATION. First drafts of prototype forms of six modules are developed.

Developmental activities with the paraprofessional program were halted in October 1972 in compliance with the recommendations of the NIE site-review team.

B. Development of Competence Assessment Instruments

The prototype evaluation system prepared by Educational Testing Service, dated September 1, 1971, and included in the Final Report for the period 2/1/71 to 12/18/71 was subjected to critical analyses by an external evaluation panel consisting of Sam Sieber of Columbia University, David Clark of Indiana University, and Derek Nunney of Oakland Community College, Michigan. In addition to these reviews, a comprehensive analysis was made of the Consortium's evaluation requirements by George Temp and by Maurice Eash and Herbert Walberg of the Office of Evaluation Research of the University of Illinois (see Appendix F). A follow-up visit was made by Maurice Eash on July 11, 1972. Based upon the comments and recommendations in the above-mentioned reviews, a new approach to assessing trainee competence was planned. This planning required a reexamination of the competence lists which were presented in the original Design Report. This reassessment was for the purpose of organizing the various competences into a matrix for use in determining student entry level and needs, developing work plans for internships, and assessing trainee progress. (See Figure 3)

During Fall 1972 a comprehensive approach for assessing student competence was designed. Exemplary competence assessment techniques for Modules 3.2 and 4.2 were developed in initial form. These assessment techniques will constitute the competence assessment battery for each series of modules and consist of: (1) Trainee Self-Rating Scale, (2) Supervisor Rating Scale, (3) Job Knowledge Test, (4) Simulation Exercise, and (5) Product Rating Scale. These techniques are described on page 76.

Figure 3. The DD&E Competence Matrix

COMPETENCE SETS

ACTIVITIES

	A PROBLEM ANALYSIS AND DEFINITION	B DEVELOPMENT	C EVALUATION	D DISSEMINATION	E MANAGEMENT AND ADMINISTRATION
1 COLLECTING AND ORGANIZING INFORMATION	A-1: ☐ Collecting Information on the Problem Area A-1.1 ☐ Identifying the Problem Area A-1.2 ☐ Negotiating the Problem Area A-1.3 ☐ Designing An Information Search of the Problem Area A-1.4 ☐ Conducting An Information Search of the Problem Area	B-1: ☐ Collecting Information on Development Techniques B-1.1 ☐ Designing An Information Search (Development) B-1.2 ☐ Conducting An Information Search (Development) B-1.3 ☐ Inventorying Development Alternatives	C-1: ☐ Collecting Information on Evaluation Strategies C-1.1 ☐ Designing An Information Search (Evaluation) C-1.2 ☐ Conducting An Information Search (Evaluation) C-1.3 ☐ Inventorying Evaluation Alternatives	D-1: ☐ Collecting Information on Dissemination Strategies D-1.1 ☐ Designing An Information Search (Dissemination) D-1.2 ☐ Conducting An Information Search (Dissemination) D-1.3 ☐ Inventorying Marketing Alternatives	E-1: ☐ Collecting Information on Managerial Strategies E-1.1 ☐ Designing An Information Search (Management) E-1.2 ☐ Conducting An Information Search (Management) E-1.3 ☐ Inventorying Management Alternatives
2 ANALYZING	A-2: ☐ Analyzing the Problem Area A-2.1 ☐ Annotating Resource Information A-2.2 ☐ Assessing the Problem Area	B-2: ☐ Analyzing Alternative Development Solutions B-2.1 ☐ Analyzing the Feasibility of Solutions B-2.2 ☐ Analyzing the Compatibility of Solution with Problem B-2.3 ☐ Analyzing the Cost-Effectiveness of Solutions	C-2: ☐ Analyzing Alternative Evaluation Strategies C-2.1 ☐ Analyzing the Feasibility of Evaluation Strategies C-2.2 ☐ Analyzing Evaluation Cost-Effectiveness	D-2: ☐ Analyzing Alternative Dissemination Strategies D-2.1 ☐ Assessing the Customer/Market D-2.2 ☐ Analyzing Marketing Feasibility D-2.3 ☐ Analyzing Marketing Compatibility D-2.4 ☐ Analyzing Marketing Cost-Effectiveness	E-2: ☐ Analyzing Administrative Alternatives E-2.1 ☐ Analyzing Administrative Organizations E-2.2 ☐ Analyzing Task Force Organizations E-2.3 ☐ Assessing Personnel Strengths
3 PLANNING AND DESIGNING		B-3: ☐ Planning and Designing for Product Development B-3.1 ☐ Establishing Developmental Objectives B-3.2 ☐ Preparing a Development Plan B-3.3 ☐ Determining Developmental Parameters B-3.4 ☐ Designing Component Systems B-3.5 ☐ Scheduling for Production	C-3: ☐ Preparing An Evaluation Design C-3.1 ☐ Planning for Evaluation C-3.2 ☐ Specifying Types of Evaluation Information/Data C-3.3 ☐ Scheduling the Evaluation Activities C-3.4 ☐ Specifying Methods of Quality Control	D-3: ☐ Preparing A Dissemination and Marketing Design D-3.1 ☐ Designing the Marketing Strategy D-3.2 ☐ Designing a Marketing Component C-3.3 ☐ Scheduling the Dissemination Activities	E-3: ☐ Designing and Organizing Task Forces E-3.1 ☐ Planning the Organizational Structure E-3.2 ☐ Designing the Organizational Structure E-3.3 ☐ Designing Task Froces E-3.4 ☐ Analyzing Management Cost-Effectiveness
4 PRODUCING, ENGINEERING	A-4: ☐ Stating the Problem A-4.1 ☐ Specifying the Desired Outcomes A-4.2 ☐ Writing the Problem Statement	B-4: ☐ Developing An Educational Product B-4.1 ☐ Developing a Component B-4.2 ☐ Integrating the Development of Components B-4.3 ☐ Modifying Product Development B-4.4 ☐ Specifying Procedures for Product Redevelopment	C-4: ☐ Developing Evaluation Devices C-4.1 ☐ Preparing Evaluation Instruments C-4.2 ☐ Assembling Evaluation Equipment C-4.3 ☐ Integrating Evaluation Components	D-4: ☐ Developing Marketing Devices D-4.1 ☐ Developing Marketing Media D-4.2 ☐ Developing Marketing Aids D-4.3 ☐ Developing Transportation and Installation Tools	
5 IMPLEMENTING		B-5: ☐ Implementing the Product B-5.1 ☐ Selecting Target Groups B-5.2 ☐ Conducting Prototype and Field Tests	C-5: ☐ Implementing the Evaluation Design C-5.1 ☐ Administering Evaluation Instruments C-5.2 ☐ Organizing Information/Data for Analysis C-5.3 ☐ Analyzing Evaluation Data	D-5: ☐ Implementing the Dissemination Strategy D-5.1 ☐ Distributing Products D-5.2 ☐ Installing the Product D-5.3 ☐ Distributing Marketing Feedback Tools	
6 EVALUATING	A-6: ☐ Evaluating the Adequacy of the Problem Analysis and Definition A-6.1 ☐ Evaluating the Retrieved Information A-6.2 ☐ Evaluating the Problem Statement	B-6: ☐ Evaluating the Development Process B-6.1 ☐ Assessing the Development Schedule B-6.2 ☐ Evaluating the Cost-Effectiveness of Development	C-6: ☐ Evaluating the Evaluation Strategy C-6.1 ☐ Assessing the Evaluation Plan C-6.2 ☐ Assessing the Evaluation Instruments C-6.3 ☐ Assessing the Implementation of the Evaluation Design	D-6: ☐ Evaluation Dissemination Strategies D-6.1 ☐ Organizing Marketing Data/Information D-6.2 ☐ Analyzing and Displaying Marketing Information/Data	E-6: ☐ Evaluating Administrative and Management Procedures E-6.1 ☐ Organizing Management Information/Data E-6.2 ☐ Analyzing and Displaying Management Information/Data E-6.3 ☐ Analyzing Employee Satisfaction E-6.4 ☐ Assessing Task Force Effectiveness E-6.5 ☐ Reviewing Budget Allocations
7 COMMUNICATING	A-7: ☐ Communicating Results of Problem Analysis A-7.1 ☐ Preparing Description of Problem Analysis A-7.2 ☐ Interpersonal Reporting the Problem Analysis	B-7: ☐ Communicating the Development Process B-7.1 ☐ Describing the Developmental Process B-7.2 ☐ Preparing Technical Descriptions of the Product	C-7: ☐ Communicating Evaluation Results C-7.1 ☐ Displaying Evaluation Information/Data C-7.2 ☐ Summarizing the Information/Data Analysis C-7.3 ☐ Communicating Summaries of Analysis	D-7: ☐ Communicating Marketing Results D-7.1 ☐ Preparing Technical Marketing Reports D-7.2 ☐ Presenting Marketing Findings D-7.3 ☐ Distributing Marketing Findings	E-7: ☐ Communicating Management Procedures E-7.1 ☐ Preparing Management Reports E-7.2 ☐ Presenting Management Information E-7.3 ☐ Distributing Management Information

Standard procedures for test development and validation will be followed as far as practical, given the relatively small sizes of the trainee groups and the target level calibration groups (20 to 40 persons in each group).

In addition to the two first drafts of exemplary competence assessment batteries for Modules 2.3, and 4.2, first drafts of batteries have been prepared for Modules 1.6 and 2.1 and first drafts of batteries for Modules 1.1, 1.2, 4.1, 4.3, 4.4 and 7.1 are under development.

In Attachment One we present a description of the assessment sequence and a sample of a module-related set of competence assessment instruments.

TASK THREE: TRAINING IMPLEMENTATION

During 1972, DD&E training was continued at four training institutions, at entry professional level at California State University at San Francisco (CSUSF) and paraprofessional level at Canada, Merritt, and Contra Costa Colleges.

The entry professional training program in education with a concentration in DD&E, leading to the MA degree, is currently in operation at CSUSF. A Program Coordinator handles the administrative aspects of program implementation and operation, and arranges internship positions for trainees. Thirty-one trainees are currently enrolled in this program -- 14 Cycle 1 trainees (entered in Fall 1971) and 17 Cycle II trainees (entered in Fall 1972). All trainees have been placed in internships, with school districts (14), R&D agencies (15), or industrial training establishments (2). All trainees have been assigned to one of three Instructional Resource Managers who assist them and their work supervisors in formulating work plans, arranging study plans, monitoring progress, and providing feedback on trainee work. Trainees may select modules now developed and/or other relevant training materials to satisfy their competence training requirements.

The three Instructional Resource Managers were assigned to provide instructional services as follows:

Spring Semester: Developmental Engineering - Dr. Earl Miller
Communication Skills - Dr. John DeCecco
Evaluation - Dr. Harold Jonsson

Fall Semester: Planning and Design - Dr. Norm Wallen
Information/Data Collection - Dr. Enoch Sawin
Engineered Internships - Dr. Wallen,Dr. Sawin, and Dr. Hale

Vitae on these instructional personnel is presented in Appendix D.

The paraprofessional training was implemented through offering DD&E courses in five competence areas: (1) Planning and Design; (2) Information/ Data Collection, (3) Communication Skills, (4) Developmental Engineering and (5) Evaluation.

Approval was obtained for Consortium courses at Cañada College during Spring and Fall semesters, 1972. Instructional Resource Managers were selected and assigned to provide instructional services as follows:

Spring Semester: Developmental Engineering - Mr. Kennedy
Evaluation - Mr. James Upton
Fall Semester: Planning and Design - Mr. Ken Kennedy
Information/Data Collection - Mr. James Upton
Communication Skills - Mr. Kilpack

Vitae on these instructors are presented in Appendix D.

Employees of Far West Laboratory have been enrolled in the DD&E program through Merritt College. Instructional experiences are managed by accredited Laboratory staff and instructional facilities are provided in the Learning Laboratory. These students are studying materials in the Communication Skills, Information/Data, and Planning and Design series.

Eight Concentrated Employment Program trainees employed by Far West Laboratory have been enrolled in DD&E programs through Contra Costa College. Again, instructional materials, facilities, and services are available at

Far West Laboratory for these students. Students in this program have been enrolled in courses representing the five competence areas mentioned above. A summary account of students enrolled in the various programs is provided in Appendix E .

There are four additional aspects of training implementation reported here: (1) student personnel services, (2) staff orientation and coordination, (3) employee recruitment and (4) supervisor orientation.

Student personnel services. Student personnel services include the recruitment and orientation of students and guidance and counseling services. During the year, 21 students were recruited and enrolled in the DD&E program at CSUSF, three at Cañada College, five at Merritt College,and eight at Contra Costa College. Students in the entry professional program at CSUSF are assigned an advisor who handles counseling services. Students in the program have made no requests for changes in advisors or indicated any dissatisfaction with the services provided. Students in the paraprofessional program at the various community colleges are assigned regular members of the counseling staff.

Staff orientation and coordination. During the year occasional coordination meetings have been held for informal sharing of experiences with instructional methods and problem areas. These meetings provided information which supplemented the formal evaluation data derived through regular evaluation procedures.

A series of orientation meetings were held at CSUSF and Cañada College before the start of the Fall semester. These meetings resulted in more clearly defining the role of the Instructional Resource Manager as contrasted with a classroom instructor, and introduced procedures and tools to be used in implementing the Engineered Internship program.

Employer recruitment. During the late spring and summer months, recruitment of employers was undertaken to secure internship positions in the fall. Contracts were negotiated with the program coordinators (Dr. Geroge Hallowitz, CSUSF and Dr. Robert Bennett, Cañada College) to contact employment agencies and locate paid or unpaid internships for students at their respective institutions. Fourteen internships have been located for the entry professional program and three for the paraprofessional program.

Supervisor orientation. The program coordinators conducted orientation of supervisors at agencies providing internships. Supervisors were briefed on the Functional Competence Training System, with specific information on the Engineered Internship. Instructional Resource Managers held a series of meetings with agency supervisors to discuss the Engineered Internship program. The competencies which students were acquiring were reviewed and clarified. In many instances, specific work tasks were suggested to provide on-the-job application of various competencies. The operation of the triad--trainee, Instructional Resource Manager, and work supervisor--was discussed and clarified. Records of these meetings were kept, indicating dates, who attended, and general topics discussed. Also, supervisors at agencies providing internships were given the forms necessary to provide monitoring and evaluation information on the Engineered Internships. Instruction was given as to the proper use of these forms and submission of information.

Learning Laboratory. During the year two learning laboratories were maintained for use by students and Instructional Resource Managers; one on campus at Cañada College, and one at the Far West Laboratory.

Each learning laboratory serves as a meeting place for students and IRMs, as a place for study, and as a resource for materials, special ERIC collections, etc. In addition, each laboratory provides study carrels, drafting equipment, calculators, microfiche readers, and other equipment for use by students and IRMs. Special laboratory hours were set up to accommodate users in the late afternoon and on Saturdays. Laboratories were manned by trained personnel who provided assistance to users as needed. In addition, the Far West Laboratory library and the Educational RDD&E Personnel and Training Library, located adjacent to the learning laboratory, provide additional relevant materials for users of the learning laboratory.

TASK FOUR: DISSEMINATION/UTILIZATION

Dissemination/Utilization involves preparation of materials developed by the Consortium into an operational, transportable form, and arrangements for the use of those materials by training institutions, R&D agencies, and others both inside and outside the geographical region of the Consortium.

In the Analysis of Projected Impact, page 11, we projected three levels of use: the comprehensive training system; a variety of configurations of parts of the system; and use of the smallest independent elements, the training modules and relevant assessment instruments.

Another dimension of use is related to the mode of use. Two major implementation modes have already been planned: pre-service and continuing education.

The Pre-service Program is degree-oriented and set in a college or university with a graduate program willing to sponsor educational DD&E as an area of specialization. Students accepted into the program will already hold Bachelor's degrees and will have the MA as their goal. Once accepted for the program, trainees will be placed in internships at DD&E agencies or other suitable work settings. Each trainee will be assigned to an Instructional Resource Manager who will assist the trainee and his/her work supervisor in planning internship activities and assigning pertinent materials from the Instructional System. (It is also quite possible that a program could be implemented which would grant BA degrees in Educational Development. In California, colleges of education award BA degrees, hence, this alternative has been untestable).

Variations of this model are extension courses and "materials-or-resource-based" programs in a variety of educational professional development programs, conducted at institutions of higher education, in cooperation with R&D agencies.

The Continuing Education Program can be implemented by one or more R&D agencies with employees who require training in competence covered by the Functional Competence Training System. The number of modules used and whether or not credit is awarded will depend on the needs of the individual student and the availability of an accrediting institution.

Other modes of use may include the development and implementation of workshop, institute, or learning-team forms and self-directed independent use of materials.

Some preliminary plans for dissemination and utilization have been developed by the Long Range Planning Committee of the Consortium and are reported in Appendix I.

TASK FIVE: MANAGEMENT

Management involves the coordination of the affairs of the Consortium, the management of the in-house staff assigned to the DD&E project and cost accounting.

Consortium activities. Agencies of the Consortium have been identified in Appendix A. During the year member R&D agencies have cooperated in the development of training programs. Member training institutions have aided in implementing the various programs. The Consortium Board was convened on March 14, 1972, to review Consortium operations, discuss priorities and revisions to the schedule of accomplishments, and to review reports from external review consultants. Activities scheduled for 1972 were reviewed at this meeting. The decision to delay development of instructional materials in the Analysis and the Management competence areas was made to provide the staff and resources necessary for improvement of evaluation procedures, instructional resources management practices, and Engineered Internship procedures. A series of coordination meetings was held with various Consortium members to negotiate contracts for accomplishing scheduled development activities. Two meetings of the Consortium Planning Committee were convened to develop plans for continuation of the Consortium beyond August 31, 1974 and for dissemination of the Consortium's products. These meetings resulted in the set of preliminary plans outlined in Appendix I.

The use of subcontractors and consultants has always been an essential part of Consortium planning. During program year 1972, subcontracts have been awarded to AIR,to HumRRO, to Hal Jonsson, Enoch Sawin, and John DeCecco of CSUSF and to Ken Kennedy and James Upton of Cañada College, and William Wolf, University of Massachusetts, for development of training materials, and to George Hallowitz of CSUSF and Robert Bennett of Cañada College for development of implementation systems. Maurice Eash, Herbert Walberg, George Temp, and Daniel Stufflebeam have advised us in the area of evaluation. Eva Baker provided consultation on materials development procedures.

During the first part of the year we made an analysis of the role subcontractors and consultants should play. We concluded that: (1) analysis and design functions can probably best be accomplished by inhouse staff, with regular review by outside consultants; (2) materials development can be either subcontracted or carried out by inhouse staff, depending on available skills and assessment of cost effectiveness; (3) materials should be reviewed by both outside experts and the central staff; (4) revision of materials can be subcontracted or done by staff, depending on skills and costs; (5) uniform technical and stylistic editing should be done by staff; and (6) though we should maintain an inhouse evaluation capability, we should also use external evaluation. Systems development can be done by staff, with occasional involvement of consultants for review purposes.

Staff management. At the beginning of the year the inhouse staff consisted of the Principal Investigator (part-time), the Project Director (Joe Ward), the Senior Evaluator (Freeman Elzey), three half-time interns, the project secretary, and a part time secretary. A senior developer (John Hourigan) was added to the staff in February.

During the first part of this program year, an analysis was conducted to find out if all functions necessary to attain program objectives were being fulfilled and if personnel were sufficient in numbers, organized appropriately, and using adequate methods to carry out their functions. Our analysis indicated that the formative development of materials and competence assessment instruments and the development of the Engineered Internship had not yet been adequately accomplished because of the complexity of launching these program efforts and the inadequacy of resources. It appeared that most of these functions should be carried out by central staff, since close and frequent communication is necessary to assure their successful completion.

By mid-June, with the addition of several staff members, the Instructional and Training Systems program was organized, with its primary responsibility the DD&E project. The staff was organized into four functional components: (a) analysis and design, (b) development, (c) evaluation, and (d) field services and dissemination. A senior staff member assumed coordination of each of the components--Banathy, Rosenoff, Elzey, and Ward respectively. Project management has been carried out by a management team consisting of the Program Director (Bela Banathy) and the three other component heads. The management team has met weekly to plan, monitor, and control the projects. Minutes of these meetings and monthly progress reports have been submitted to the Principal Investigator (Paul Hood) who is in daily contact with the Program Director. In addition, the Principal Investigator has met regularly with senior staff members.

Cost accounting system. A system of cost codes provides detailed data on the actual costs of various activities undertaken. Budget and accounting procedures are administered by the Far West Laboratory's

Business Office. Budget projections are now made on a monthly basis. Printouts of current accumulated expenditures are provided monthly and are compared with our monthly projections. In late 1972, a new cost code scheme was developed in line with the program revision and reflects the 1973 work plans.

Section Two: WORK PLANS FOR JANUARY 1 - MAY 31, 1973

INTRODUCTION

This Work Plan for the further development of the Functional Competence Training Program covers the period from January 1 to May 31, 1973. Plans are reported in terms of the five major tasks that must be performed:

1. Systems Development. Development of the Instructional System, the Competence Assessment System, and the Quality Control System.
2. Product Development. Development and validation of the materials and instruments that provide the resources for the Instructional and Competence Assessment Systems.
3. Training Implementation. Creation of suitable test conditions in which training can be implemented and evaluated.
4. Dissemination/Utilization Planning. Planning and arranging for the dissemination and utilization of the products and systems that have been developed.
5. Project Management. Management of the four tasks described above.

For each of these five tasks, this Work Plan projects specific accomplishments for three milestone dates: April 1, 1973, May 31, 1973, and August 31, 1974. This organization provides time frames in compliance with the requirements of the Researcher Training Task Force of NIE. A statement of definition and a description of anticipated accomplishments are presented for each of the five task areas.

TASK ONE: SYSTEMS DEVELOPMENT

Systems development involves the conceptualization, design and formative development, field testing, evaluation and revision of the Functional Competence Training System and its three component systems: (a) the Instructional System, (b) the Competence Assessment System, and (c) the Quality Control System.

The Functional Competence Training System

The Functional Competence Training System is designed to provide users with instructional resources and procedures needed to acquire entry-professional level technical skills in the following competence areas: Planning and Design; Information/Data Collection; Communication Skills; Developmental Engineering; Evaluation; Analysis and Design; Dissemination and Marketing; Management; and the Educational Information Consultant.[6] (See Appendix C for description of competence areas.) The level of competence attainable will equal that of a DD&E junior professional with an MA degree and one year of DD&E experience or someone with a BA degree and two to three years' DD&E experience. The training system provides opportunities for the application of the acquired competences in the "real" contexts of DD&E through the Engineered Internship and for assessment and certification of the attained competences. Products relevant to the Functional Competence Training System are the Design of a Functional Competence Training System and the Final Report on the Development of the Functional Competence Training System.

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[6] This series consists of three modules adopted from a recently completed instructional system called the Educational Information Consultant. These modules are compatible with both the Information/Data or Communication Skills Series. For accountability reasons, however, we keep them separate and have designated them the ninth series in the system. Appendix L gives a detailed description of this series.

Anticipated Accomplishments:

1. The Design of a Functional Competence Training System. This document will describe the design, organizing concepts, and essential characteristics of the program (a major revision of the original design). By May 31, 1973, an outline will be developed and by August 31, 1974, the document will be available for dissemination.

2. Final Report on the Development of the Functional Competence Training System. This report will document the Consortium's experience in development, validation, and dissemination of the Functional Competence Training System so the knowledge and procedures may be communicated to others concerned with training development in general and educational R&D training in particular. A printed report will be submitted by August 31, 1974.

A. The Instructional System

The Instructional System provides users with validated instructional resources and procedures. Resources will be in the form of a series of self-administered instructional modules developed for each DD&E competence area described in detail in Task Two: Product Development. Procedures are designed and validated by which individual learners can acquire DD&E competences using the instructional resources and apply these competences in a "real" educational DD&E context through an Engineered Internship. Special emphasis will be placed on studying the variables involved in the operation of the Engineered Internship and examination of interaction patterns among the trainee, the Instructional Resource Manager and the work supervisor. Alternative configurations of use of the Engineered

Internship will also be explored (see Appendix J). Two implementation models of the Instructional System will be developed: the pre-service implementation model (degree-oriented) and the continuing education implementation model (in-service). Products of the Instructional System will include the *instructional resources*; a *Guide to the Instructional System*; a *Catalog of Instructional Resources*; a *Guide to Implementation of the Pre-service Program*; and a *Guide to Implementation of the Continuing Education Program*.

Anticipated Accomplishments

Instructional resources and the Engineered Internship. By April 1, 1973, of the 37 modules to be developed, five will be in the planning for development phase, five in prototype development, five in prototype form, eighteen in revision for field form, one in field testing and three in revision based on field testing. (See Figure 4, p. 72). Competence assessment instruments for four modules will be available in initial form ready for prototype test and instruments for two modules will be in operational form.

By April 1, 1973, information collected on the Fall 1972 performance of the Engineered Internship will have been analyzed, and this information will be used to revise the Engineered Internship.

By April 1, 1973, a cost analysis will have been completed covering the development and validation of all projected training materials and competence assessment batteries. *Based on this analysis, a determination will be made as to the feasibility of development of all or parts of the*

Analysis and Definition Series and Management Series and their related assessment instruments. By May 31, 1973, 32 modules will be in the Instructional System, along with externally developed alternate or supplementary resources (at least 25). The modules in the system at this time will represent at least seven of the nine competence areas (including the Educational Information Consultant series) and will constitute 32 of the 37 modules planned. Of these, eight will be in prototype form, 11 under revision for field form, 10 under field testing and three in operational form. Competence assessment instruments for two modules will be available in operational form, instruments for four more modules will be in prototype testing, and those for six additional modules will have been developed in initial form ready for prototype testing.

If the decision is made in April to proceed with the Analysis and Definition Series and the Management Series, their advanced designed and developmental planning will have been completed.

By August 31, 1974, procedures, instructional resources, and assessment instruments for the Instructional System will all have been developed and validated and will be ready for operational use and dissemination to meet Fall 1974 training requirements.

Guide to the Instructional System. The purpose of this guide is to present a one-volume, comprehensive description of the Instructional System for use both as an orientation to the system and as an operational guide for participants. The guide, an adaptation and extension of the current Instructional Resource Manager's Guide, will include sections describing in detail the underlying rationale; the operational plan of the system; definitions of roles and functions of participants; and their auxiliary aids, such as the Catalog of Instructional Resources and the Guide to the Competence Assessment System (described on page 66.) It will include a special section describing methods for its installation.

By April 1, 1973, the prototype form of the Guide to the Instructional System will have been developed and will be undergoing testing with trainees, Instructional Resource Managers and work supervisors.

By May 31, 1973, the guide will be nearing the end of Spring 1973 prototype testing. Throughout the testing period continuous feedback on the adequacy, clarity and usefulness of this volume will be solicited from trainees, Instructional Resource Managers, work supervisors, and others so revision of the guide can be undertaken during the summer of 1973.

By August 31, 1974, the Guide to the Instructional System will have undergone prototype testing during Spring 1973, and revision based on feedback from prototype testing will have been accomplished during Summer 1973. Field testing will have taken place in Fall 1973 and Spring 1974. Revision based on field testing and preparation of the operational form will be accomplished.

Catalog of Instructional Resources. This catalog will be developed for use by the Instructional Resource Manager and trainees. It will list and describe all modules, supplementary readings, books, journal articles, etc., that constitute the instructional resources. It will also include instructional materials developed elsewhere but adapted for use in the Instructional System.

At the present time, the catalog is part of the Instructional Resource Manager's Guide. By April 1, 1973, it will be produced as a separate document, accounting for all the instructional resources available in the system at that time. The catalog will be ready for dissemination by August 1974.

Guide to the Implementation of the Pre-service Program. Installation and operation of pre-service and continuing education programs in training institutions and agencies are guided by two implementation models, the Pre-service Program Model and the Continuing Education Program Model.

The pre-service Program Model is degree-oriented, set in a college or university with a graduate program willing to sponsor eduational DD&E as an area of specialization. Students accepted into the program will already hold Bachelor's degrees and will have the MA as their goal. Once accepted for the program, trainees will be placed in internships at DD&E agencies or other suitable work settings. They will be assigned to an Instructional Resource Manager who will assist them and their work supervisor in planning internship activities as assigning pertinent materials from the Instructional System. (A degree program based on the same general model could be implemented which would grant BA degrees in Educational Development.)

The approach to implementing the Pre-service Program will be presented in a guide containing the following items:

a. The Design of the Entry-Professional Functional Competence Training System. This section will provide a complete description of the Functional Competence Training System and an orientation to its organizing concepts and essential characteristics.

b. How to Install a Pre-service Program. This section will describe procedures for obtaining accreditation for programs, instructional staff, physical facilities, and instructional resources.

c. The Guide to the Instructional System. Described earlier on page 60.

d. The Catalog of Instructional Resources. Described earlier on page 61.

e. Student Personnel Services. This section will include procedures and tools needed to recruit, select, orient, guide, place and follow-up trainees in the program.

f. The Employment System. This section will present a description of suggested procedures for establishing cooperative relationships with employing agencies, facilitating establishment of internship positions and job placement of trainees.

g. The Guide to the Competence Assessment System. Described on page 66.

h. The Catalog of Competence Assessment Instruments. Described on page 66.

j. The Quality Control of the Instructional System and the Competence Assessment System. Described on pages 67 and 68.

By April 1, 1973, specifications will be formulated for the guide and a narrative outline form will be developed. By May 31, 1973, the following sections will be developed in draft form: How to Install the Pre-service Program; The Instructional System; the Catalog of Instructional Resources; the Competence Assessment System; the Catalog of Competence

Assessment Instruments. By August 31, 1974, the guide will be fully developed and validated by testing with at least two users during Fall 1973 and Spring 1974, and with at least three potential users during the same period.

Guide to Implementation of the Continuing Education Program. The setting for the in-service or Continuing Education Program is an R&D agency with employees who require training in competences covered by the Functional Competence Training System. The number of modules used and whether or not credit is awarded will depend on the needs of the individual student and the availability of an accrediting institution. The approach to implementing the Continuing Education Program is presented in a guide which provides detailed information on procedures to follow and resources required to install and operate the Continuing Education Model in an R&D agency.

The content of this guide will be similar to the Guide to the Implementation of the Pre-service Program. However, section (b) How to Install the Continuing Education Program, incorporates information presented in sections (e) and (f) of the pre-service guide, describing procedures for obtaining accreditation for programs, instructional resources management capability, physical facilities, instructional resources, and selection and placement of trainees.

By April 1, 1973, specifications will be formulated for the guide and a narrative outline will be available. By May 31, 1973, the following sections will be developed in draft form: How to Install the Continuing Education Program; Guide to the Instructional System; Catalog of Instructional

Resources; Guide to the Competence Assessment System; Catalog of Competence Assessment Instruments. By August 31, 1974, the Guide will be fully developed and validated with at least two user organizations and two potential user organizations during Fall 1973 and Spring 1974.

B. The Competence Assessment System

The Competence Assessment System provides individuals, R&D agencies and training institutions with a method for assessing competence in the technical areas of educational DD&E. The system delineates DD&E competences by level of proficiency, provides methods for assessing competence in trainees and suggests criteria for certifying competence. A validated system of competence assessment has a utility far beyond use with the Instructional System. It can become an instrument that employers can use to screen applicants, to place new employees, to assign employees to tasks, to identify employee competence deficiencies and to plan a personnel development program.

DD&E competences are organized according to competence sets, subsets and elements. The competence subsets generally correspond to the content of modules in the Instructional System and the competence elements to learning episodes within modules. Competence assessment batteries will consist of a number of assessment techniques for each competence subset. A description of the components of the competence assessment batteries, as well as the status of development at various time points, will be presented in Part Two: Product Development. The

Competence Assessment System consists of competence assessment batteries (developed on a modular basis), a handbook of procedures for using them, the Guide to the Competence Assessment System, and a Catalog of Competence Assessment Instruments.

Anticipated Accomplishments:

Guide to the Competence Assessment System. This handbook will specify procedures used to assess trainee competence based upon knowledge acquired in the competence subsets (through the modules) and application of this knowledge in the Engineered Internship. Specifically, it will give detailed instructions to the Instructional Resource Manager in the use of the competence assessment batteries, criteria against which trainee performance can be evaluated, and methods for competence certification. Procedures will also be specified by which a trainee can "challenge" certain parts of the training and/or be certified in competencies without completing the training.

Catalog of Competence Assessment Instruments. This catalog will be developed for use with the Instructional System. It will describe the assessment instruments associated with the competence sets and subsets.

By April 1, 1973, a prototype form of the Competence Assessment System and the guide will be developed and undergoing testing. The first form of the catalog will be developed and produced as an independent document. By May 31, 1973, the Competence Assessment System will be nearing completion of its prototype test, and revisions in its design will begin, based on feedback from the prototype testing. The catalog will be up-dated by September, 1973. By August 31, 1974, the Competence

Assessment System, the guide and the catalog will have undergone prototype testing, revision, field testing and revision, and the operational forms will have been developed as an integral part of the Functional Competence Training System and be available for dissemination.

C. The Quality Control System

The Quality Control System provides means and methods by which implementing agencies may evaluate the adequacy and maintain quality control of use of the Instructional and Competence Assessment Systems. Quality control instruments will be developed and a guide provided for each system, including what questions to ask, what information and data are to be collected with the use of what instruments, how to analyze the information and data collected, and how to interpret them.

Anticipated Accomplishments:

Guide to the Quality Control of the Instructional System. By April 1, 1973, an initial draft of portions of this guide will be developed and tested with participating faculty at CSUSF and Far West Laboratory staff. This draft will specify procedures by which an implementing agency may continuously monitor implementation of the training and the Engineered Internship. By May 31, 1973, revision of the initial draft will be undertaken, based on testing. The remaining portions of the guide will be in draft form, and a review of each portion will begin as it is completed. This guide will be tested with the institutions using the system during Fall 1973 and Spring 1974. By August 31, 1974, an operational form will be completed, becoming an integral component of the Functional Competence Training System.

Guide to the Quality Control of the Competence Assessment System. This guide will outline methods for collecting information/data on application of the system and procedures for modifying and up-dating it. By April 1, 1973, the initial draft will be complete. By May 31, 1973, revision of the draft will be in progress, based on review by participating faculty at CSUSF and Far West Laboratory staff. Planning for implementation of the procedures in this guide will begin during field testing of the Instructional System in Fall 1973. Information will be collected on the performance of the guide from professionals involved in the prototype implementation of the pre-service and continuing education models. The guide will be revised based on an analysis of this information. By August 31, 1974, an operational form will be complete and become an integral component of the Functional Competence Training System.

Descriptions of the instruments used in the Competence Assessment System and timetables for their development will be found in Task Two: Product Development, pages 75 through 79.

PART TWO: PRODUCT DEVELOPMENT

Product development involves the specification, selection for design, formative development, field testing, evaluation and revision of the materials and instruments that provide the required resources of the Instructional System and the Competence Assessment System. Scope of work will be reported for two areas: the development of instructional resources and the development of competence assessment instruments.

A. Development and Adoption of Instructional Resources

The Instructional System uses two kinds of resources: materials developed by the Consortium and materials adopted/adapted by the Consortium. Both kinds of resources are used by the trainee and the Instructional Resource Manager.

Materials Development

Instructional materials will be developed at the entry professional level in eight competence areas and are available in a ninth[7] The instructional materials for each competence area are organized into *series*: (a) Planning and Design, (b) Information/Data Collection, (c) Communication Skills, (d) Developmental Engineering, (e) Evaluation, (f) Analysis and Definition (g) Dissemination and Marketing, (h) Management[8], and (i) Educational Information Consultant. Within each series are sub-divisions called *modules* , each of which focuses on a cluster of competence elements. Modules are referred to by numbers within their series-- for instance,

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[7] See Hood, Paul *et. al.*, *Design of a Functional Competence Training Program for Development, Dissemination and Evaluation Personnel at Professional and Professional Levels in Education*, Volumes One and Two, Berkeley, California: Far West Laboratory for Educationla Research and Development, 1970. The term "course" used in the Design Report is now replaced with the term "series".

[8] Three modules have been adopted from the *Educational Information Consultant* Instructional System described in Appendix L.

Module 3.2 is the second module of Series 3, Communication Skills. Within modules learning activities are grouped by episodes which attend to specific competence or skills within the set. Each episode has its own objectives, learning activities,and progress checkpoints that allow the trainee, Instructional Resource Manager and work supervisor to evaluate the trainee's progress. Typically, modules are designed to be self-administered, but one trainee may also work with another trainee or in a small group.

Modules are designed around specific performance objectives derived from task analysis. They are designed to enable the learner to achieve a pre-determined level of competence. (A definition of levels of competence appears in Appendix G) In compliance with the suggestions of the Researcher Training Task Force, Attachment Two outlines the instructional content in each competence area and describes the format of the materials. Exemplary competence assessment instruments are also enclosed as Attachment One.

A schedule for development of instructional resources from January 1, 1973, through August 31, 1974, is presented on page 72. In that schedule, the 37 modules now comprising the resources for DD&E training at the entry professional level are identified. It also groups the many specific developmental tasks into seven phases:

Phase 1. Prepare developmental plan for series,
assign competence, outling content.
Phase 2. Prepare prototype form.
Phase 3. Test prototype form.
Phase 4. Prepare field test form.

Phase 5. Test field test form.

Phase 6. Prepare operational form.

Phase 7. Disseminate operational form.

Each module is designed in relation to others in a series. In several modules relationships across series have been incorporated, eg. "Planning for Evaluation" (Module 1.4 in the Planning and Design Series) is also an integral part of the Evaluation Series. Phase 1 covers this design and organizational effort. It includes the allocation of competence identified in the initial Design Report and the Competence Matrix analysis and an outline of content developed by subject-matter specialists, author(s), and product development staff. In this phase authors receive a Module Developer's Kit which provides specific instructions and performance criteria for each facet of development.

Phase 2 of the production effort places the prototype form of the module in the hands of students and reviewers. During development of the prototype form, as parts of a module are developed, they are tried out with two or three trainees or subjects representative of the trainee population.

Phase 3 provides for prototype testing of the module with the involvement of five or more trainees, and includes such additional evaluative activities as reviews by content specialists, developmental staff and work supervisors.

Phases 4 and 5 repeat the production and testing cycles. The revised module is given to 10 to 20 more users. Their evaluations form the basis for the final revision, Phase 6, and the preparation and printing of the operational form, Phase 7.

We present below a summary statement of the status of module development at the "milestone" dates. The Schedule of Developmental Activities, Figure 4, gives the phase-of-development timeline for each of the 37 modules.

April 1, 1973

In Phase 1 (Development of Module Plans)
Overview Module
Analysis & Definition Series: 6.1, 6.2
Management Series: 8.1, 8.2

In Phase 2 (Preparation of Prototype Form)
Evaluation Series: 5.3, 5.4, 5.5
Dissemination/Marketing Series: 7.2, 7.3

In Phase 3 (Prototype Testing)
Developmental Engineering Series: 4.1, 4.3, 4.4, and 4.5
Dissemination/Marketing, 7.1

In Phase 4 (Field Test Form Preparation)
Planning & Design Series: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6
Information/Data Collection Series: 2.2, 2.3, 2.4, 2.5, 2.6
Communication Series: 3.1, 3.2, 3.3, 3.4
Developmental Engineering Series: 4.1
Evaluation Series: 5.1, 5.2

In Phase 5 (Field Testing)
Information/Data Collection Series: 2.1

In Phase 6 (Preparation of Final Form)
The three modules adopted from the EIC instructional system

May 31, 1973

In Phase 2 (Preparation of Prototype Form)
Overview Module
and, contingent on April 1 cost analysis
Analysis & Definition Series: 6.1, 6.2
Management Series: 8.1, 8.2

In Phase 3 (Prototype Testing)
Evaluation Series: 5.3, 5.4, 5.5
Dissemination/Marketing Series: 7.2, 7.3
Developmental Engineering: 4.1, 4.3, 4.4

In Phase 4 (Field Test Form Preparation)
Planning and Design Series: 1.6
Information/Data Collection Series: 2.2, 2.4
Communication Skills Series: 3.1, 3.3, 3.4
Developmental Engineering Series: 4.2, 4.5
Evaluation Series: 5.1, 5.2
Dissemination and Marketing Series: 7.1

In Phase 5 (Field Testing)
Planning and Design Series: 1.1, 1.2, 1.3, 1.4, 1.5
Information/Data Collection Series: 2.1, 2.3, 2.5, 2.6
Communication Skills Series: 3.2

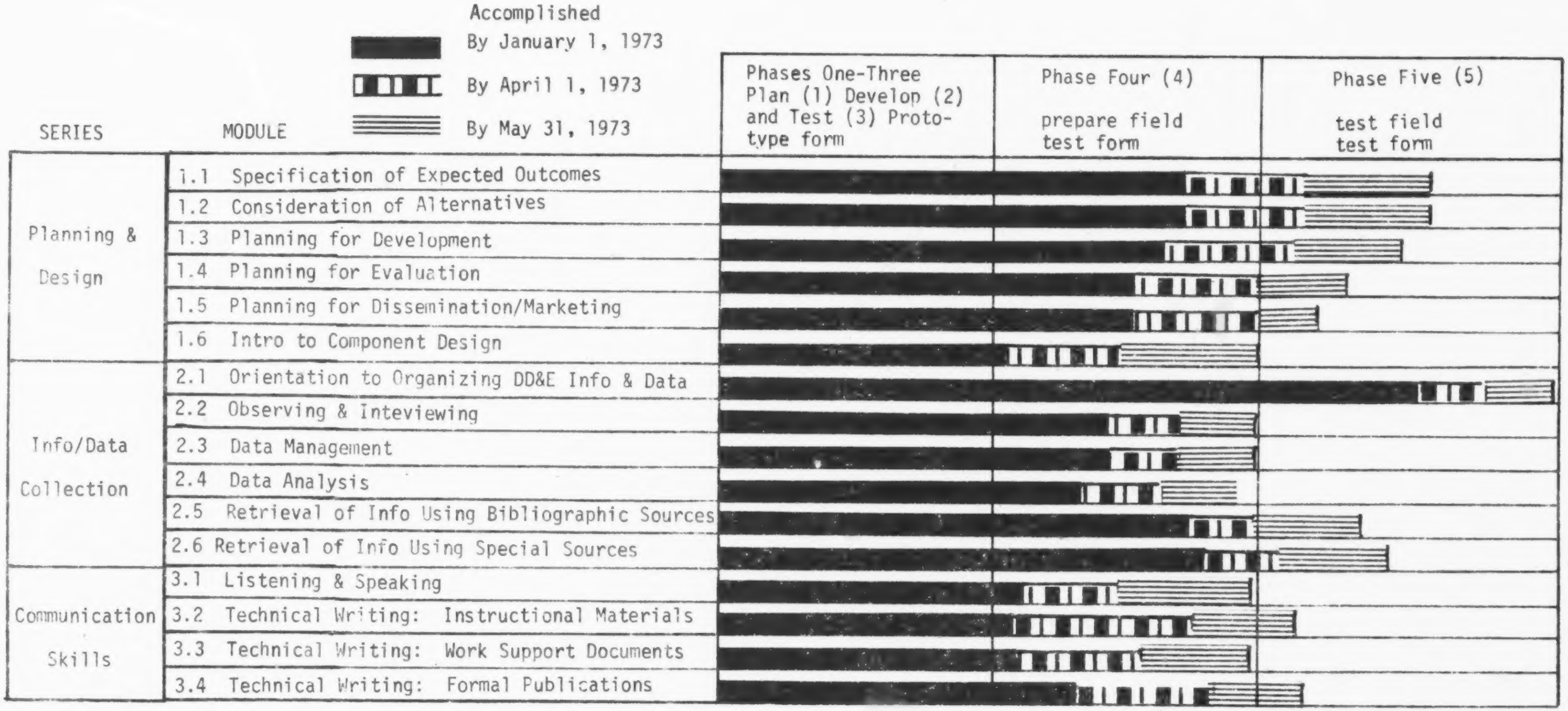
In Phase 6 (Preparation of Final Form)
Educational Information Consultant Series: 9.1, 9.2, 9.3

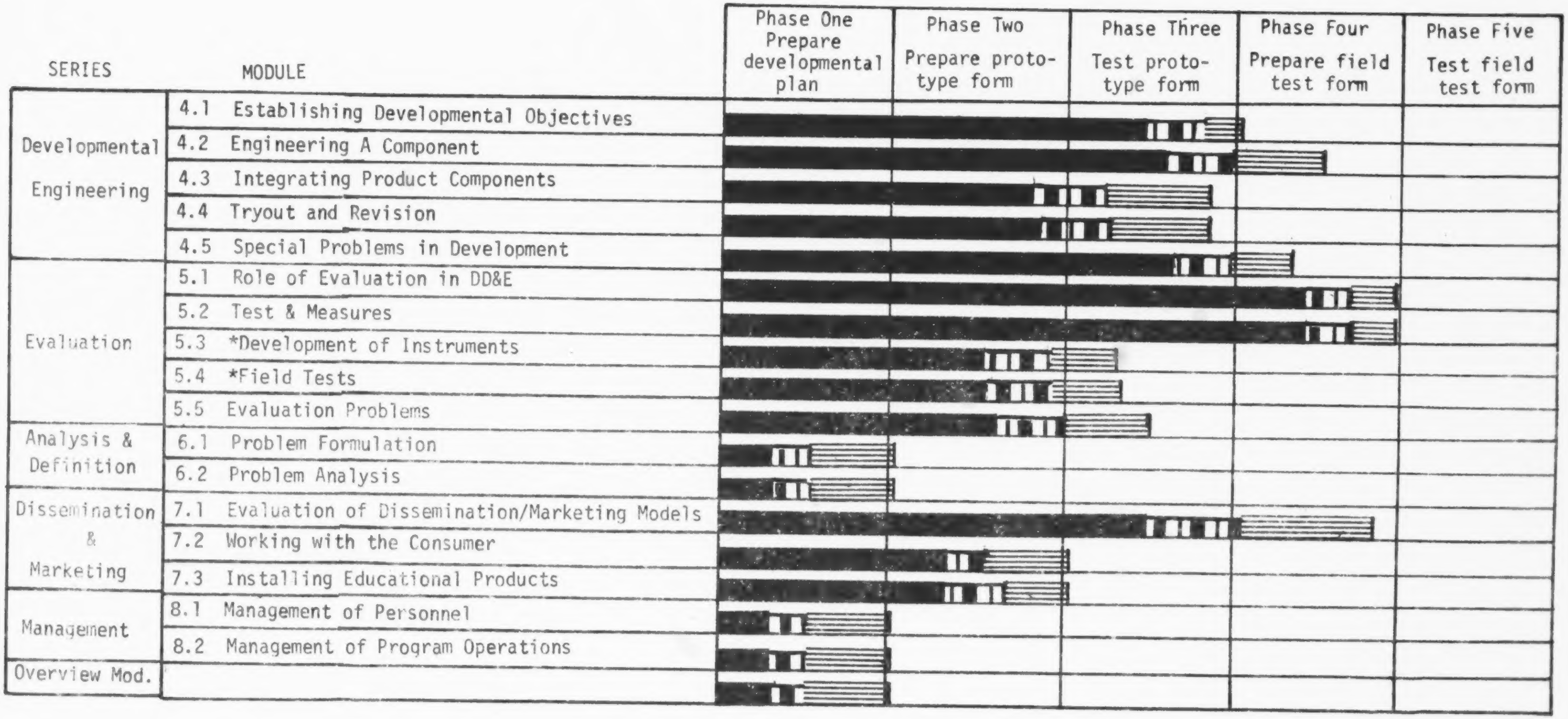
By August 31, 1974, all modules will be in operational form, ready for dissemination. The completion dates will, of course, fall over a span of time. Three modules are projected as ready in operational form by September 1, 1973; twelve more by January 1, 1974; another ten by April 1, 1974; twelve by July 1, 1974; and the remaining modules completed between July 1 and August 31, 1974.

Materials Adoption/Adaptation

Instructional materials adopted from external sources fall into four categories: (a) those materials that, in their present state, clearly satisfy Laboratory design requirements with respect to competence set, instructional method, instructional level (entry-professional), and feasibility considerations such as cost, packaging, and copyright stipulations; (b) those materials that, with suitable modification or further development, can satisfy requirements specified in (a) above; (c) those materials included within the scope of materials of a particular module; and (d) those reference materials that are used as outside readings serving to enchance or expand the scope of the module but not requisite to its successful completion.

Figure 4.
Schedule of Development of Instructional Resources




SERIES
MODULE
Phase One Prepare developmental plan
Phase Two Prepare proto-type form
Phase Three Test proto-type form
Phase Four Prepare field test form
Phase Five Test field test form
Developmental Engineering
4.1 Establishing Developmental Objectives
4.2 Engineering A Component
4.3 Integrating Product Components
4.4 Tryout and Revision
4.5 Special Problems in Development
Evaluation
5.1 Role of Evaluation in DD&E
5.2 Test & Measures
5.3 *Development of Instruments
5.4 *Field Tests
5.5 Evaluation Problems
Analysis & Definition
6.1 Problem Formulation
6.2 Problem Analysis
Dissemination & Marketing
7.1 Evaluation of Dissemination/Marketing Models
7.2 Working with the Consumer
7.3 Installing Educational Products
Management
8.1 Management of Personnel
8.2 Management of Program Operations
Overview Mod.

Anticipated Accomplishments

By April 1, 1973, all modules under development will have been reviewed with a view toward identifying externally developed resources -- fitting one of the categories defined above -- most relevant to them. By August 31, 1974, all materials collected or identified will be listed in the Catalog of Instructional Resources under the modules to which they are related. Externally developed materials which are integral parts of the system will be ready for dissemination; other optional or supplementary material will be referenced in the appropriate module and listed in the Catalog of Instructional Resources.

B. Development of Competence Assessment Instruments

For each DD&E competence set competence assessment instruments will be developed. As presentely designed, these instruments will consist of the following devices:

1. Trainee Self-Rating Scale. This instrument will be completed by the trainee prior to the assignment of instructional material and again at the conclusion of the trainee's instruction and application phase of training. The purpose of this scale is to obtain the trainee's perception of his/her proficiency in performing tasks related to the various competence elements at the beginning and end of training in a particular area. The pre-instruction rating may be used along with other indices to judge whether or not the trainee has sufficient proficiency in a particular competence subset to warrant challenging it (i.e., credit by examination).

2. Supervisor Rating Scale. This instrument, similar in form to the Trainee Self-Rating Scale, is designed to obtain the work supervisor's perception of the trainee's level of proficiency in the relevant competencies.

This assessment of the trainee's skill and knowledge will also be obtained before and after instruction and application.

3. Job Knowledge Test. This instrument will test the trainee's job knowledge relative to the particular competence subset. It will be used as a pre-test to determine the trainee's knowledge base prior to training and will be used after training to assess knowledge gain. This instrument, along with others, may be used by trainees wishing to "challenge" a competence subset.

4. Simulation Exercises. Miniature job tests and more complex simulations require the trainee to apply his/her knowledge to a simulated situation or miniature job sample typically encountered in DD&E work. These exercises, as well as the related Job Knowledge Test, will be calibrated by testing a sample of professionals operating at target level (at least MA and one year experience or BA and two years experience). Technical review by work supervisors of the simulations and Job Knowledge Test and of the test protocols will be used to establish content validity.

5. Product Rating Scale. This scale is to be used to evaluate products developed on the job by trainees. A rating scale to indicate the quality of such products will be developed and calibrated through use in rating products developed by professionals operating at the target level and by involving work supervisors in the development and calibration of the rating scale.

Standard procedures for test development and validation will be followed as far as practical, given the relatively small sizes of the trainee groups and the target level calibration groups (20 to 40 persons in each group).

Steps in development of competence assessment instruments:

Step 1: Prepare draft

Step 2: Administer to three pairs (see below)

Step 3: Revise, based on Step 2

Step 4: Administer to three other pairs

Step 5: Revise, based on an analysis of findings accumulated during Step 4 (Note: Steps 4 and 5 may have to be repeated several times to achieve a satisfactory set of instruments)

Step 6: Administer to ten pairs

Step 7: Revise, based on analysis of findings accumulated during Step 6 (Note: Steps 6 and 7 constitute a preliminary calibration test. Although the sample is quite small, it should be large enough to spot operational problems and to afford very rough statistical estimates.)

Step 8: Administer to at least 30 additional pairs

Step 9: Use the information gathered for the purpose of calibrating the instruments, setting standards, and documenting face validity

Step 10: Revise for operational form

Pairs refer to an employee (or trainee) and his work supervisor. In steps 2 and 4 one pair each will be drawn from three kinds of population: (1) the incoming pre-service student, (2) students who have completed relevant training, and (3) DD&E agency personnel with MA and at least one year experience or BA and at least two years' experience. The last group constitutes the "calibration" population. In Steps 6 and 8, all pairs are drawn from the calibration population. Note that the battery emerging after Step 10 will be a "validated" set of instruments that will be used for definitive pre-training, post-training comparison, in order that the trainees and the instructional system may in turn be assessed.

Anticipated Accomplishments

By April 1, 1973, two batteries will have been "crash" developed through Steps 1 through 10 above in order to validate the instrument development and calibration procedures and to provide a realistic basis for cost and time estimates for subsequent battery development. We intend to provide technical specifications for the development and validation of competence assessment instruments, including such aspects as minimum number of persons and characteristics of calibration and validation groups, level in inter rater reliability, level of internal consistency reliability, standard errors of measurement, plan for analysis, etc. In addition, at least four more sets of assessment instruments (corresponding to four instructional modules) will be in draft form (Step 1) ready for development following these technical specifications.

By May 31, 1973, prototype testing of these four sets will be nearing completion (Step 4 or 5) and initial forms (Step 1 or 2) will be available for six more sets. By August 31, 1974, competence assessment batteries for all the series will have been developed, calibrated, validated, and prepared in operational form to be included in the Functional Competence Training System.

PART THREE: TRAINING IMPLEMENTATION

A. THE PRE-SERVICE PROGRAM

A pre-service training program leading to the MA degree in education with a concentration in DD&E is currently in operation at CSUSF. A Program Coordinator handles the administrative aspects of program implementation and operations and arranges internship positions for trainees. Thirty-one trainees are currently enrolled in this program--14 Cycle I trainees (entered program in Fall 1971) and 17 Cycle II trainees (entered program in Fall 1972). All trainees have been placed in internships, either with school districts (14), R&D agencies (15), or industrial training establishments (2). All trainees have been assigned to one of three Instructional Resource Managers who assist them and their work supervisors in formulating work plans, arranging study plans, and providing feedback on trainee work. Trainees may select modules now developed and/or other relevant training materials to satisfy their competence training requirements. It is planned that 12 new trainees (Cycle III) will be recruited for the Fall 1973 program at CSUSF.

A pre-service program similar to the one at CSUSF will be launched during the school year 1973-74 at another institution outside the geographic region of the Far West Consortium in order to accomplish a preliminary (operational) test of the program's transportability. Instructional resources and guidebooks needed to implement this program will be provided by the Far West Consortium.

Anticipated Accomplishments

By April 1, 1973, Cycles I & II will be in progress in the Far West Consortium region, and initial plans for implementation outside the region will be developed. By May 31, 1973, preparations for Cycle III in the Far West Consortium region will begin, and negotiations will be underway for introduction of the pre-service program at an institution outside the Far West Consortium region.

B. THE CONTINUING EDUCATION PROGRAM

Continuing education programs to meet the training requirements of R&D agency employees will be implemented during 1973-74. At least one program will be initiated at an R&D agency within the Far West Consortium's region and at least one at an agency located elsewhere. These programs may be accredited through training institutions or may be non-accredited. Instructional resources and guidebooks needed for implementation on a prototype test basis will be provided by the Far West Consortium. At least six students will be enrolled in each of these programs.

Anticipated Accomplishments

By April 1, 1973, initial plans will be developed for implementation of the program in both the Far West Consortium region and another location. By May 31, 1973, negotiations will be underway for a 1973-74 introduction of the program in both areas.

PART FOUR: DISSEMINATION/UTILIZATION

Dissemination/utilization involves preparation of systems and materials developed by the Consortium in an operational, transportable form and arrangements for the use of those systems and materials by training institutions and R&D agencies outside the region of the Consortium.

Anticipated Accomplishments

By late February, 1973, a preliminary dissemination plan will be prepared. At the AERA meeting in February, this preliminary plan will be critiqued with three or four potential user institutions (training institutions and R&D agencies). These preliminary discussions will cover both pre-service and continuing education implementation. The outcome of these discussions will be documented by April 1, 1973.

By May 31, 1973, an analysis of the dissemination/utilization problem will be developed. Dissemination requirements will be formulated and at least two approaches to dissemination will have been specified. A document will report the outcome of the analysis and describe and evaluate the dissemination approaches. Negotiations will be underway to arrange for pilot implementation of at least one pre-service and one continuing education program outside the Far West Consortium's geographic region.

By August 31, 1974, the two models and their dissemination approaches will have been empirically tested. System descriptions, guidebooks, and instructional and assessment materials will be developed in operational form and ready for release. Arrangements will be made for the implementation of the system outside the boundaries of the Consortium's geographic region.

PART FIVE: PROJECT MANAGEMENT

Project Management involves the coordination of the affairs of the Consortium and the management of the in-house staff assigned to the DD&E project.

Membership in the Consortium will be reviewed in order to retain as members only those agencies which continue to be functionally involved in the project. The Consortium Board will pay special attention to the development of a continuing education program and to long-range planning for pre-service training and continuing education beyond 1974. These products are anticipated here:

1. A report on a plan for continuing education program for 1973-74 (available by May 31, 1973).
2. An initial statement of the long-range plans beyond 1974 (available by May 31, 1973).
3. A detailed plan and specific arrangements for continuation of training in the Consortium geographic area beyond 1974 (available by late 1973).

The in-house staff is organized into four functional components: (a) systems development,(b) development of instructional resources, (c) development of competence assessment instruments, and (d) field services and dissemination. A senior staff member coordinates each of the components. Project management is carried out by a management team consisting of the Principal Investigator, the Program Director, and the component heads. Products associated with project management include interim reports and final reports to be submitted to NIE.

SUMMARY STATEMENT OF OUTCOMES

By August, 1974, the Consortium will deliver:

1. Pre-service and Continuing Education Models for the training of entry professionals in educational DD&E.
2. Development products related to the program as follows:
   - A Guide to the Instructional System
   - A Guide to the Quality Control of the Instructional System
   - A Guide to Pre-Service Program Implementation
   - A Guide to Continuing Education Program Implementation
   - Over 30 instructional modules developed by the Consortium
   - A Catalog of Instructional Resources
   - Competence assessment instruments for each training module
   - A Catalog of Competence Assessment Instruments
   - A Guide to the Competence Assessment System
   - A Guide to Quality Control of the Competence Assessment System.
3. Knowledge products to include findings relevant to:
   - the design of a functional competence training system
   - the development and validation of competence-based training programs and instructional resources
   - development and validation of the Engineered Internship and a study of variables impinging upon it
   - development and validation of pre-service and continuing education programs
   - advantages and disadvantages of a training development consortium
   - validation of needed skills in educational DD&E
   - new patterns for synthesizing the "academic" and "work"

environments in training

- an individualized approach to responding, in economic and timely ways, to changing needs for on-the-job training and upgrading of DD&E personnel.

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ANNUAL REPORT

Contract No. OEG-0-71-1194

DESIGN OF A FUNCTIONAL COMPETENCE TRAINING PROGRAM FOR DEVELOPMENT, DISSEMINATION AND EVALUATION PERSONNEL AT PROFESSIONAL AND PARA-PROFESSIONAL LEVELS IN EDUCATION

Volume II:
Appendices

Paul D. Hood
Bela H. Banathy

January 31, 1973

The research reported herein was performed pursuant to a contract with the National Institute of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to freely express their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

National Institute of Education

Task Force on Researcher Training

HE 003 780

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Appendix A: MEMBERS OF THE FAR WEST CONSORTIUM

Far West Laboratory for Educational Research and Development
Berkeley, California

American Institutes for Research
Palo Alto, California

Human Resources Research Organization
Monterey, California

Educational Testing Service
Berkeley, California

Stanford Research Institute
Palo Alto, California

California State University at San Francisco
San Francisco, California

Canada College,
Redwood City, California

State Education Agency, Department of Education
State of California

Local Education Agencies
(represented by Dr. Paul Ehret, San Lorenzo School System)

Appendix B: RATIONALE

The basic purpose of the Far West Consortium is to develop and validate a transportable training system for professionals who are already employed, or who will move into future positions in the field of educational development, dissemination, and evaluation (DD&E), with initial emphasis on the requirements of the San Francisco Bay Area in the early 1970's and for the entire country thereafter.

There are too few appropriately trained personnel to carry out the development, dissemination, and evaluation of educational products and processes. This deficiency can be corrected by a training program that can produce qualified DD&E personnel and upgrade the skills of people already working in the field.

Hendrik Gideonse stated in 1969: "Educational research in the United States is going through a period of agitation, ferment, and perhaps even crisis." His words apply today -- not just in the field of educational research, but even more in the emerging discipline of educational DD&E. Many R&D institutions established with USOE funding in the early '60's represent a federal commitment to educational renewal. Trained personnel were scarce in the early '60's, so new agencies drew most of their senior professional staff from university research communities. Most of the training and experience of this group, however, was relevant to conclusion-oriented research rather than the decision-oriented, disciplined inquiry of development, dissemination, and evaluation. Furthermore, literally no formally trained personnel were available for middle-level staff requirements, since virtually no demand for their services had existed.

From the beginnings of the post-Sputnik federal support of science and language curriculum reforms through the enactment of ESEA legislation in 1965, a new demand arose for men and women qualified to undertake professional tasks in educational DD&E. In a 1969 study, Clark and Hopkins projected a probable five-fold increase in the number of R&D positions in the ten year period ending in 1974. Their minimum growth assumptions had projected a decline in research positions from 95.6% of the total R&D positions to 38% in 1974, whereas development positions had been seen as increasing to 45% of the 1974 total. This analysis of manpower requirements, along with our own of the San Francisco Bay Area, led us to place our initial emphasis on pre-service training programs in educational DD&E.

John Hopkins (1971) updated the 1969 Clark and Hopkins study, indicating that subsequent economic and political shifts have occurred which make the original projections too high. The earlier study was a financially-based projection of demand for trained personnel. The update was based on actual funding through 1971 and projected funding through 1974. The update projected a need for 8,699 positions by 1974 and indicated that most of these may already be filled. (See Table 1 .) The reasons for these changes in the projections are: (1) economic factors indicating very little expansion in the number of positions available since 1966, and (2) no marked increases projected in funding supporting new positions. These changes clearly indicate a shift from an expansionary labor market

Table 1

Projected 1974 Positions in Educational RD&D

Sub-Units (Federally Supported)	Projected Position	Other Settings	Projected Positions
Regular Projects	991	Schools and colleges of education	1,244
Laboratories	564	Other behavioral and social science departments	527
Title III Centers 6%	469	Schools and departments of Psychology	500
State Educational Agency Res. Units	361	Other discipline and academic departments	491
Small Projects	354	State Departments of Education	457
R and D Centers	307	Business and industrial organizations	300
NSF Course Content Project	216	Private research institutes and agencies	300
Handicapped Materials Centers	193	Schools and school systems	270
Clearinghouse	180	College and university administrative units	205
Vocational Education Research Coordinating Units	177	U.S. Office of Education	156
Handicapped R&D Centers	127	Professional associations	90
Vocational Education R&D Centers	88	Inter-agency Associations	50
Early Childhood Centers	39		
Policy Study Centers	13		
Total Positions Federally Supported	4,079	Total Positions Supported from other Sources	4,590

Final Projection of Positions	8,669
Estimated Research Positions	[a]2,861
Estimated Development Positions	[a]4,334
Estimated Diffusion Positions	[a]1,474

[a] Figures based on proportions projected in the original Clark and Hopkins study (1969, p. 288) of: research, 33%; development, 50%; and diffusion, 17%.

to a relatively stable one in terms of total numbers. However, the updated positions confirm shifts in demand for trained personnel (generally away from research and toward greater relative demand for developers and evaluators).

Educational DD&E personnel are now recruited from a variety of disciplines, but there is relatively little reliable information available on their previous work experiences (Schalock, et.al., 1972).[1] A regional survey by Hood and Banathy (1970) suggests that there may be substantial competition from business and industry for personnel with the same general skills as those required in educational R&D. Hence we can foresee a need to meet requirements for trained personnel from various competing sectors as well as the necessity of training and continuing the education of personnel in educational R&D. The studies of Brickell (1970, 1972 in preparation), Byers (1971), Fleury, Cappelluzzo and Wolf (1970), Sanders and Worthen (1970), and York (1968) indicate that training in development and diffusion (as well as in educational programming and decision-making) may still be quite inadequate. Numerous studies revealing the low quality of some ESEA Title I and Title III projects as well as other school-based exemplary programs (Wargo, et.al., 1971) can be seen as further danger signals if improvement of educational practice calls for the significant improvement of disciplined inquiry skills in operating educational agencies.

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[1] The Oregon Studies (Schalock, e.al., 1972, Volume I, Chapter 6) provides our best current source of information, but is based on data provided by approximately 100 persons in 15 carefully selected DD&E projects.

Even in an era of reduced federal spending for educational R&D, both manpower surveys and the day-to-day realities of life in development agencies reveal a need for middle-level professional personnel.[2] *Adequately trained* development and diffusion personnel cannot be found in sufficient numbers to effect educational change in the 1970's. For example, there is no credible evidence that most of the "principal investigators" have learned educational DD&E other than the "hard" (and costly) way, or that these DD&E managers have either the time or resources to efficiently train those they supervise. The applied character of development and installation tasks (as contrasted with the doctoral-level training provided for the university researcher) has clearly shown a need for intensive inservice training programs in *mission oriented* R&D agencies and in allied industrial firms. To date, there is no really reliable information regarding even the proportions or numbers in the functional areas of DD&E, but available information (Hood and Chorness, 1972, pp. 3.5, 3.6; Shalock et. al., 1972, pp. 87-93) suggests that continuing education will be essential to meet the changing structure of work requirements and to upgrade staff competence in "directed" and "applied" R&D programs.

The educational R&D community has often been reproached by the legislative and executive branches of government for its less-than-hoped-for productivity and its less-than-universal impact on the improvement of educational practices. Pragmatic evidence of impact in the improvement of educational practices may be more evident only after a well-trained cadre of development, dissemination, and evaluation personnel gains experience in the R&D agencies which have assumed the major burdens of creating and validating educational alternatives.

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[2] Ibid. The Oregon Studies data show that over three-fourths of the personnel in the 15 DD&E projects held MA or BA degrees, and less than a fourth held doctorates.

The Rationale for a Consortium Approach

Clark and Hopkins (1969, pp. 422-485) point out the need for a strategy and outline a series of tactics for meeting educational R&D manpower requirements. A major short-term objective, in their view, would be establishment of a training network to produce development and diffusion personnel in large numbers in a relatively short period (p.426). They suggested several tactics pursuant to this objective, including the establishment and support of experimental or developmental training programs, the initiation of course content improvement programs, and the establishment of consortia of institutions for inservice development of DD&E personnel in education.

Taken together, these three recommendations suggested the basis for a new pattern combining the strengths of several kinds of agencies. An optimum configuration of cooperating institutions, we believe, would require:

1. One or more agencies with competence in the design, development, evaluation, installation, and maintenance of training systems;
2. One or more colleges or universities willing to develop and provide graduate-level programs for personnel in DD&E work at the professional (MA) level;

3. Two or more large agencies with projects involving substantial elements of development, evaluation or diffusion work that can provide and support a number of internship positions;
4. Several agencies which are potential employers of educational DD&E personnel and will be able to create positions for probationary and permanent personnel;
5. Representation for educational, community, and student interests.

Such a combination is desirable since it is highly unlikely that any single unit listed above can carry out all aspects of the program. For several reasons, it appears that a combination of on- and off-the-job training will be more economical that either alone. (See, for example, Continuing Education for R&D Careers, Renck, Kahn and Gardner, 1969.) Few educational DD&E agencies are large enough to support, much less develop, the necessary on-the-job courses. Large agencies capable of providing well-organized internship training positions seem essential. Students of training research have usually stipulated the necessity for training where research is being done (Buswell, 1966). Empirical studies of the effect of research assistantships on productivity in the field of education (Buswell, 1966; Worthen, 1968) also call attention to this point.

Experience with the Consortium Approach

Our experiences with the consortium approach during the last two years have helped us to gain some new and valuable insights.

It appears that in developing a complex model like the Functional Competence Training System one should start out with a smaller number of core agencies. A longer lead time than was available to us is also required to construct clearly defined developmental models, procedures, guides, etc., so member agencies will have detailed guidance with adequate examples to ensure consistency and quality of development. Once such models, procedures, and guides are developed, membership may be expanded if funding is adequate. In our case, a large initial membership also created difficulties in providing active and meaningful participation of all members, increasing the demand for the limited shared resources available, and creating problems in coordination, monitoring, and quality control.

On the other hand, the active participation of experienced R&D agencies in the development of the program (such as FWL, AIR, and HumRRO) has led to healthy "cross-fertilization" in the forms of learning from each other, avoidance of parochial models and views of DD&E, mutual critique, involve relatively new and emerging content areas. In well-defined content areas there may be less of an advantage and a "single agency" model may be more efficient. But when the discipline is emerging, as in the case of educational DD&E, the multiple perspective afforded by three large experienced institutions such as FWL, AIR, and HumRRO is an invaluable corrective for narrowly conceived or unrealistic content.

Appendix C: DEFINITION OF COMPETENCE AREAS

Selection of Content and Structure

The Design Report indicated that when we examined the task analyses and competence inventory survey information, two alternatives for organization of training content seemed worth examining.

Processes. The organizing categories of data and people emerged when we asked what DD&E personnel work with. Refinement of these categories leads to a focus on the skills and knowledges subsumed by such general processes as collecting (data or information), organizing, analyzing, classifying, ordering, constructing, synthesizing, communicating, managing, etc.

Contexts of DD&E phases. Our analytic and retrospective studies of the contexts of DD&E work revealed a number of fairly distinct kinds of activities that tend to occur in cycles. Although the demarcation between these phases is not always clearcut, and there is almost always a repetition of subcycles of phases within a larger development cycle, we can usually identify most or all of the following:

1. Analysis (systems or operations analysis, including need identification and problem definition)
2. Planning and Design
3. Developmental Engineering
4. Evaluation
5. Dissemination/Marketing

A mixed approach. These alternative approaches were found to be complementary. Training in processes were built into each of the five "context" series listed above. But, our analysis indicated a need for separate, supplementary attention to three additional process oriented competence areas:

6. Communication
7. Information/Data Collection and Organizations
8. Management

Functional Context Series

Analysis and Definition. This series provides the trainee with an orientation to problem analysis, identification, and problem definition. The trainee will practice analyzing needs and identifying problems in a variety of educational settings. Besides collecting information on problems and needs from documentary information, he will also have experience in developing statements of systems requirements and constraints, selection and articulation of design concepts, and collecting data on or making a priori judgments regarding alternatives, estimating feasibility, etc.

Planning and Design. This series provides orientation to and familiarization with a broad set of competences associated with laying out the overall plan for a development or operational solution and the design work of a plan. The trainee will formulate goal statements based on a statement of system requirements; derive from goal statements performance specifications; consider or invent alternative ways and means by which specifications can be met; analyze and select the most cost/effective alternative; learn ways to present the selected alternatives; and prepare plans for development, evaluation and dissemination.

Developmental Engineering. This series provides the trainee with an orientation to the wide variety of activities and procedures that may be required in fabricating a product or generating a replicable process. Through a series of selected developmental case studies, protocols, simulated tasks, and projects, the trainee will learn how to: establish developmental objectives; fabricate a simple component and combine components; use test information as a basis for modification or improvement; learn to make judgments as to the quality of the component under development and suggest revisions; and locate and employ technical materials, aids and resources for development.

Evaluation. The modules in this series provide instructional experiences in (a) the logical and methodological basis of evaluation, (b) the kinds of evaluation peculiar to DD&E,and (c) techniques and procedures for coping with practical evaluation problems. The series will cover the areas of formal and informal evaluation. Examples of the former include: examining the test conditions, reviewing the nature of the instruments used, examining the evaluation design, and comparing expected outcomes with actual outcomes.

The latter area covers the general area of decisions and evaluations normally encountered from the inception of a project through to marketing and dissemination. Familiarization and some practice with sampling, design, data collection, and analysis procedures will be provided as a part of the series.

Dissemination and Marketing. In this series, the intent is to create an awareness of the importance of dissemination, marketing and utilization of products and education solutions developed through R&D efforts. The trainee will be familiarized with the problems of dissemination, marketing and utilization and with practical strategies, methods and techniques that can be employed in solving those problems. Furthermore, the trainee will acquire an understanding of and practical experience with the use of media, graphics, reproduction processes, and communication techniques as they relate directly to dissemination and marketing.

Process Skills Series

Information/Data Collection and Organization. The modules of this series are designed in two sections, one dealing with collection and organization of documentary information and the other dealing with collection and organization of quantitative and qualitative data. These two sections can be presented separately or as one unit. The information portion will focus on competences in search, retrieval and organization of documentary information with emphasis on basic library research skills, and proficiency in the use of ERIC, DATRIX, CIJE, etc. The data portion will be substantially larger in scope and will focus on providing familiarization with commonly encountered methods of obtaining data, and basic procedures for reducing, organizing, analyzing and displaying it.

Communication Skills. This series focuses on receiving, organizing, and transmitting information or instruction through oral, written and visual media in informal, formal, and technical contexts. The trainee will acquire needed competences by means of communication exercises and projects derived from analysis of the frequent and critical communication requirements faced by DD&E personnel. Additional areas of competence treated in the course include writing and making oral presentations and using visual aids in making such presentations; writing review of literature, press releases and dissemination information; summarizing test data; preparing brochures describing projects, activities, products or agencies.

Management. This series is organized in two basic sections: personnel and operations. The personnel section provides, through role playing, simulated situations and experiences in performing supervisory activities. The operations section deals with management by objectives, work assignments, production scheduling and control, and maintaining communication between teams and within a group.

Appendix D: RESUMES OF PROFESSIONAL PERSONNEL

I. Summary of Far West Consortium Personnel and their functions

II. Vitae of Far West Consortium Personnel

A. Summary of Far West Consortium Personnel and their Functions

Charles Aldrich: Developmental Assistant, Instructional and Training Systems Program (ITS Program), FWLERD.

Charles Weynard Bailey: Educational Administrative Consultant, California State Department of Education, SEA representative on the Consortium Board of Directors.

Bela H. Banathy: Director, ITS Program, FWLERD, FWLERD representative on the Consortium Board of Directors.

Herman D. Bates: Instructor in Social Science and Psychology, Canada College, Instructor, Communications Skills course, Fall 1972, Canada College.

Robert Bennett: Assistant to the Chancellor, San Mateo Community College District, Developer, Paraprofessional Program Implementation System, Canada College (of the San Mateo Community College District).

John DeCecco: Professor, Psychology of Education, California State University of San Francisco (CSUSF), Developer, Communications Skills course, EP level.

James Dunn: Director, Developmental Systems Division, American Institutes for Research (AIR), Developer, Information/Data Collection course, various EP and PP modules, module 1, Evaluation course, and module 1, Developmental Engineering course, EP level, AIR representative on the Consortium Board of Directors.

Paul Ehret: Superintendent of Schools, San Lorenzo Unified School District, Local Education Agency (LEA) representative on the Consortium Board of Directors.

Freeman Elzey: Coordinator, Systems Development, ITS Program, FWLERD, Developer, various EP and PP modules in the Information/Data, Evaluation, and Planning and Design courses.

Jack Fraenkel: Professor of Department of Interdisciplinary Studies in Education, CSUSF, Instructor, Dissemination and Marketing course, Fall 1972.

Darrah Hallowitz: Research Intern, ITS Program, FWLERD.

George Hallowitz: Chairman, Department of Educational Administration, CSUSF, Developer, Entry Professional Implementation Program at CSUSF, CSUSF representative on the Consortium Board of Directors.

John Helmick: Vice President and Director of the Western Office of ETS, ETS representative on the Consortium Board of Directors.

Paul Hood: Director, Division II of FWLERD, Principal Investigator for the Functional Competence Training Program in DD&E, ex-officio member of the Consortium Board of Directors.

John Hourigan: Developmental Associate, ITS Program, FWLERD.

Hal Jonsson: Professor, Department of Interdisciplinary Studies in Education, CSUSF, Instructor, Evaluation course, CSUSF, Spring 1972, Developer, module 4, Evaluation course.

Kenneth Kennedy: Instructor, Canada College, Planning and Design course, Developmental Engineering course, Fall 1971, Spring 1972, Fall 1972, Developer, modules in Planning and Design and Communication Skills courses on PP level.

Bennett Kilpack: Instructor, Canada College, Communications Skills course, Developer, modules in Communications Skills course, PP level.

Nancy Adelson McCutchan: Senior Developer, ITS Program, FWLERD.

Robert McMenamin: Technicon Information Systems, Developer, Communication Skills course on PP and EP levels, Technicon Information Systems representative on the Consortium Board of Directors.

Earl Miller: Professor, Department of Educational Administration, CSUSF, Instructor, Developmental Engineering course, CSUSF, Fall 1971.

Marcia Moore: Research Intern, ITS Program, FWLERD.

Patricia O'Brien: Dean of Women, Canada College, Developer, Implementation and Personnel Systems, PP level.

Lionel Olsen: Professor, Department of Educational Administration, CSUSF, Instructor, Planning and Design course, CSUSF, Fall 1971, Fall 1972.

Carl Rittenhouse: Senior Research Psychologist, Stanford Research Institute, Developer, Evaluation Materials, Planning and Design course, Stanford Research Institute representative on the Consortium Board of Directors.

Wayne Rosenoff: Coordinator, Materials Development, ITS Program, FWLERD.

Enoch Sawin: Professor, Department of Education, CSUSF, Developer, modules in Information/Data and Evaluation courses, Instructor, Information/Data course, Fall 1971, Fall 1972.

Monica Schmitz: Coordinator, Implementation System, ITS Program, FWLERD.

Diana Studebaker: Research Intern, ITS Program, FWLERD.

Elaine Taylor: Senior Staff Scientist, HumRRO, Developer, Evaluation Materials, Communication Skills course, module 2 for Developmental Engineering course, HumRRO representative on the Consortium Board of Directors.

James Upton: Instructor, Canada College, Developer, modules for Information Data and Evaluation courses, PP level, instructor, Information/Data course, Fall 1971, Fall 1972, Evaluation course, Spring 1972.

Joseph S. Ward: Coordinator, Assessments Development, ITS Program, FWLERD.

Norman E. Wallen: Professor, Department of Interdisciplinary Studies in Education, CSUSF, Instructor, Planning and Design course, Fall 1972, Advisor, Engineered Internship, CSUSF, Fall 1972.

B. Vitae of Far West Consortium Personnel

CHARLES L. ALDRICH
DEVELOPMENTAL ASSISTANT, INSTRUCTIONAL & TRAINING SYSTEMS PROGRAM
FWLERD

Academic Background

- B. A. San Jose State College, 1963
- M. S. California State University, San Jose, Cybernetic Systems, 1972

Professional Experience

- Federal Grants Administrator, San Jose State College; Development work for University of California Urban Extension, Santa Cruz; Operations Officer, U. S. Army Recruiting Station, Atlanta, Ga.; Vice-president (co-owner) Banner Play Bureau, Inc.
- 1971-present, Far West Laboratory for Educational Research and Development. Assignments including development and field test coordination for the learning team form of the graduate-level, transportable training program, The Educational Information Consultant: Skills in Disseminating Educational Information.

Professional and Service Organizations

- Member, advisory board, Community Response, Inc., San Jose, Ca.; member, Board of Directors, Santa Clara County Volunteer Action Center, San Jose, Ca.; Environmental Sciences Institute; Society for Cybernetic Systems.

Publications

- The Educational Information Consultant: Skills in Disseminating Educational Information (with B. Banathy, W. Rosenoff, et al),FWLERD, Berkeley, Ca., 1971; A Compendium of New Careers within Santa Clara County, (with L. Barozzi), U. C. Urban Extension, Santa Cruz (unpublished manuscript), 1970; "Feedback as a Function of Interpersonal Communication," paper given before the Society for Cybernetic Systems, San Jose State College, San Jose, Ca., November, 1970; "Communication Technology," paper given before the Society for Cybernetic Systems, San Jose State College, San Jose, Ca., November, 1969.

CHARLES WEYNARD BAILEY
EDUCATION ADMINISTRATIVE CONSULTANT
CALIFORNIA STATE DEPARTMENT OF EDUCATION

Academic Background

. B. A. University of Redlands, 1936

. M. A. University of Redlands, 1953

. Ed.D. University of Southern California, 1958

Professional Experience

. School Superintendent, Colton Joint Unified School District, 1966-69;
. Assistant Superintendent and Superintendent, Colton High School District, 1962-66;
. Teacher, principal and Assistant Superintendent, Colton Elementary School District, 1937-59;
. Instructor, University of Redlands.

. Development of innovative projects for ESEA Title III, dissemination of selected projects, coordination of Fiscal Management operations.

Professional Organizations and Honors

. American Association of School Administrators;
. California Association of School Administrators;
. Educare - University of Southern California;

. Phi Delta Kappa;
. Delta Epsilon.

BELA H. BANATHY
DEPUTY DIRECTOR, DIVISION II
DIRECTOR, INSTRUCTIONAL & TRAINING SYSTEMS PROGRAM
FWLERD

Academic Background

- B. S. Hungarian Royal Academy, 1940
- M. A. San Jose State College, Counseling and Psychology, 1963
- Ed.D. University of California, Curriculum and Instruction, 1966

Professional Experience

- Deputy Director, Communication Program; Design and Test Curriculum Information Systems and Educational Planning and Management Systems; Principal Investigator, Design, Development and Validation of a Transportable Instructional System for the Training of Educational Diffusion Evaluation Personnel; Defense Language Institute; Development and testing of generic models for foreign language training systems; Designing generic models for aptitude and proficiency testing; Designing faculty training programs.
- Designing, developing, and validating systems for leadership training (1959-69); Analysis of educational and training programs of school districts and other institutions; Consultant to schools, training institutions, and development agencies; Teaching professional courses and graduate seminars in education, systems development and systems theory.

Professional Organizations and Honors

- AASA; AERA; MLA; Society for General Systems Research; National Task Force on Systems Education; Phi Delta Kappa, ASIS.

Publications

- The common concept foreign language test (CTB, 1962); A design for leadership development (BSA, 1963); Instructional systems (Fearon Pub., 1968); The design and management of training: A systems approach (Boy Scouts World Bureau, 1969); Current trends in college curriculum: A Systems approach (The Encyclopaedia Britannica, 1969); Systems and Education (San Jose State College, 1969); Systems development in guidance: A learning-task-centered-approach (O.E. Bureau of Research, 1969); Several articles published in professional journals, (1960-1972).

HERMAN DEAN BATES
DEPT. OF SOCIAL SCIENCE & PSYCHOLOGY
CANADA COLLEGE, REDWOOD CITY, CA.

Academic Background

. A. B.	Western Reserve University, 1953
A. M.	University of Michigan, 1962
Ph.D.	University of Michigan, in progress

Professional Experience

- School Psychologist, San Carlos Elementary School District, 1970-present; Pupil Personnel Director, Enterprise Elementary School District, Redding, Ca., 1969-70; Director and Chief Psychologist, Warner Guidance Center, Palm Springs, Ca. 1967-69; Staff Psychologist, Patton State Hospital, Patton, Ca., 1964-67; School Psychologist, Lincoln Park School, Lincoln Park, Mich., 1961-1963; School Psychologist, Dearborn City Schools, Dearborn, Mich., 1960-61.

Professional Organizations and Honors

- American Psychological Assn.; Western Psychological Assn; Calif. State Psychological Assn.; Calif. Assn. of School Psychologists and Psychometrists; School Psychologists Assn. of San Mateo Co.; National Council on Family Relations; Calif. State Marriage Counseling Assn.; and local mental health and community organizations.
- Phi Delta Kappa

Publications

- "Changing Attitudes Toward Mental Retardation Through Work Service Programs," MPA, 1960

ROBERT L. BENNETT
ASSISTANT TO CHANCELLOR FOR RESOURCE DEVELOPMENT & PROJECT COORDINATION
SAN MATEO COMMUNITY COLLEGE DISTRICT OFFICE

Academic Background

- B. S. Montana State College, Physical Science, 1950
  M. S. Eastern Montana College, Guidance and Counseling, 1959
  Ed.D. University of California, Educational Curriculum and School Administration, 1967

Professional Experience

- San Mateo College District administrative staff for program development, 1969-present; San Mateo College, coordinator-developer of cooperative education, 1967-69; San Mateo High School Dist. Title III program, Educational Resources Center, 1965-67; Project Consultant, development of San Mateo County PACE Center, 1965-67; Consultant to the U. S. Office of Education; Consultant to Kentucky Appalachia Highlands Consortium of Community Colleges; Consultant to the Office of the Chancellor, Calif. State Colleges; Member, California Community College Task Force on Coordinated Instruction and California Governor's Task Force on Occupational Education.

- High School Counselor, Aragon High School, San Mateo, 1961-65; Instructor and Counselor, Laurel High School, Laurel, Montana, 1957-61.

Professional Organizations and Honors

- California Junior College Association; CROOTS Committee

Publications

- Identification of Secondary School Curriculum Strengths and Weaknesses through Case Study and Senior Sampling, Dissertation Abstracts, Ed. 368-3: 2471, University Microfilms, Ann Arbor, 1967; Cooperative Education in the San Mateo Junior College Dist., Ford Foundation Report, 1969; Cooperative Education, Chap. 2, 6, and 7, American Junior College Association, 1971; Cooperative Education Student Handbook, San Mateo College District, 1969; Cooperative Distributive Education, California Dept. of Education, Bureau of Business Ed., Sacramento, 1969; Quality Assurance: Benchmarks, Techniques and Thoughts for the Future, QA Report for Educational Resources Center, 1968; California Legislation Position Papers, SB 672 (Alquist) Cooperative Work Experience Education in California, 1969, and AB 1171 (Fong) Coordinated Instruction Systems in California Community Colleges, 1970; "Coordinated Instruction Systems Offer New Opportunities to Vitalize Learning in Community Colleges," Journal of the American Association of Junior Colleges, March 1972.

JOHN D. DeCECCO
PROFESSOR OF PSYCHOLOGY AND EDUCATION
CALIFORNIA STATE UNIVERSITY AT SAN FRANCISCO

Academic Background

. B. S.	Allegheny College	1946
. M. A.	University of Pennsylvania	1949
. Ph.D.	University of Pennsylvania	1953

. Post-doctoral study at Wayne State University, 1953-55, Michigan State University, 1955-60, and University of Maine, 1956-57 (summers).

Professional Experience

. Erie Public High Schools, Erie, Pa. 1946-48.
. University of Detroit, 1953-55.
. Michigan State University, 1955-60.
. University of British Columbia, Summer, 1963.
. Columbia University, 1968-70.
. New York University, Spring, 1970.
. Unim Graduate School (for experimenting colleges and universities), 1971-.
. California State Dept. of Education on Programmed Instruction, 1961-63.
. Hillsborough School District, 1962-63.
. San Francisco Unified School District, 1963-66.
. Educational Testing Service Development of Field Test in Education, 1969-70.
. Center for Urban Education, New York, 1970.
. Editorial Consultant, CRM Books (Psychology Today), 1968-
. Editorial Consultant to American Educational Research Journal, 1967-73.

Professional Organizations and Honors

. AERA: Divisions B, C, and D; APA: Divisions 2, 15, and 26; CERA; NCEM; AAUP; and Phi Delta Kappa.

Publications

. Nine books in the fields of Education and Psychology and numerous articles in professional journals.

JAMES A. DUNN
DIRECTOR, DEVELOPMENTAL SYSTEMS DIVISIONS
AMERICAN INSTITUTES FOR RESEARCH
PALO ALTO, CALIFORNIA

Academic Background

B. S.	Wayne State University	Mathematics	1954
M. A.	Wayne State University	Educational Psychology	1959
Ph.D.	University of Michigan	Education and Psychology	1962

Professional Experience

- Visiting Fellow, Laboratory for Human Development, Harvard University
- Assistant Professor Psychology, and of Education, University of Michigan
- Program Director, Project PLAN, American Institutes for Research (1968-70)
- Director, Midwest Research Center for Pupil Personnel Services, University of Michigan (1964-67)
- Director, School Psychological Examiner Program, University of Michigan

Professional Organizations and Honors

- USOE Senior Post-Doctoral Fellow, Harvard University; USPHS Fellow, University of Michigan; Horace E. Rackham Fellow, University of Michigan.
- American Psychological Association; American Educational Research Association

Publications

- A comparative study of pupil construct systems relevant to classroom conditions and events (U. of Michigan, 1962); Dimensionality of the test anxiety scale for children (Michigan Academy of Science, 1963); Training and certification of midwestern pupil personnel workers (U. of Michigan, 1967); The PLAN instructional program: a systematic approach to curriculum development (AERA, 1970); Bias minimization in questionnaires (with collaborators, in preparation).

PAUL D. EHRET
SUPERINTENDENT OF SCHOOLS
SAN LORENZO UNIFIED SCHOOL DISTRICT
SAN LORENZO, CALIFORNIA

Academic Background

. A. B. University of California, Political Science & English
  M. A. University of California, Educational Administration

. Graduate Study: University of California; University of Chicago; Teachers' College, Columbia University; and University of Virginia.

Professional Experience

. 1948-present, Superintendent of Schools, San Lorenzo Unified School District; 1946-48, Deputy County Superintendent of Schools, Alameda County; 1941-46, Officer, U.S. Navy, retired as Lt. Commander; 1938-1941, Teacher and Counselor, Berkeley, California Unified School Dist.; Consultant, Alameda Unified School District; Consultant, Davis Unified School District.

Professional Organizations and Honors

. Past President: California Association of School Administrators; Oakland Area Council, Boy Scouts of America; Oakland Area Community Chest; Board of Trustees, Alameda Co. United Fund.

. Past Chairman: Financing Public Education State Committee, California Teachers' Association - 8 years; California School Administrators State Cooperative Finance Committee - 3 years; California Association of School Administrators Annual Conference, 1968; Region XII Delegation to Boy Scout World Jamboree, Asagiri, Japan, 1971.

. Present Memberships: President, San Lorenzo Scholarship Foundation; President, San Francisco Bay Area Council, Boy Scouts of America; Member, American Association of School Administrators; Member, Association of California School Administrators

. Past Memberships: Vice President, Bay Area United Fund; Member, Board of Directors, California Assn. of School Administrators; Member, Board of Governors, California Assn. of School Administrators; Member, Board of Directors, Alameda County Chapter, American Red Cross; Member, American Assn. of School administrators Study Mission to the Soviet Union, 1959; Leader, American Association of School Administrators Study Mission to the Soviet Union, 1968; Member, California Council on Public School Long Range Finance Planning; Member, State Council of Education, California Teachers' Association.

FREEMAN F. ELZEY
COORDINATOR, SYSTEMS DEVELOPMENT
INSTRUCTIONAL & TRAINING SYSTEMS PROGRAM
FWLERD

Academic Background

B. A.	San Francisco State College	Psychology	1957
M. S.	San Francisco State College	Psychology	1959

Professional Experience

- Research Assistant in Psychiatric Research, Mount Zion Hospital, San Francisco, 1956-58.
- Research Positions at San Francisco State
- Research Associate in Mental Retardation, 1958-68; Research Associate in Project on Thinking in Elementary School Children, 1963-66; Co-director of Project to Develop a Vocational Competence Scale for Mentally Retarded adults, 1965-66; Co-director of Project to Develop a Pre-School Social Competence Scale, 1965-66; Senior Research Associate directing Field Observation Staff of Sausalito Teacher Education Program, 1966-69; Research Director of Demonstration Project for Nursery School Cross Cultural Education, 1966-69; Research Director, Pre-School Project for Multiple Handicapped Children, 1969-71.
- Lecturer in Education, San Francisco State College, 1967-71.
- Consultant in Educational Research, Far West Laboratory for Educational Research and Development, Berkeley, California, 1971.

Professional Organizations and Honors

- American Psychological Association; American Association on Mental Deficiency; American Educational Research Association; California Educational Research Association.

Publications

- A Programmed Introduction to Statistics, 2nd Edition, Monterey, Brooks-Cole 1971
- A First Reader in Statistics, Monterey, Brooks-Cole, 1967
- Business Statistics: A Programmed Introduction, Monterey, Brooks-Cole, 1971
- A Programmed Introduction to Research (with S. Levine), Belmont, Ca. Wadsworth, 1970
- A Programmed Introduction to Educational and Psychological Measurement (with S. Levine), Belmont, Ca., Wadsworth, 1970

JACK R. FRAENKEL
PROFESSOR, DEPT. OF INTERDISCIPLINARY STUDIES IN EDUCATION
SAN FRANCISCO STATE COLLEGE

Academic Background

. B.A. University of Nebraska at Omaha, Nebraska, Sociology
M.A. San Francisco State College, San Francisco, Ca., Social Science
Ph.D. Stanford University, Stanford, Ca., Social Studies Education

Professional Experience

. Jr. High and Senior High Teacher, Pacifica and San Francisco, Ca.; Research Assistant, Secondary Education Project, Stanford University, 1965-66; Assoc. Professor of Interdisciplinary Studies in Education, San Francisco State College, 1966-71; Professor, Dept. of ISED, San Francisco State College, 1971-present.

. Associate Director, Taba Curriculum Development Project in Social Studies, San Francisco State College, 1966-69; Coordinator, NDEA Institute on Teaching Disadvantaged Children, Sausalito Unified School District, 1968; Assoc. Director, NCERD Project, Teacher Corps. (competency-based education); Visiting Professor of Education, Dept. of Curriculum & Instruction, School of Education, University of Washington, Seattle, Summer, 1971.

Professional Organizations & Honors

. San Francisco Council for the Social Studies; California Council for Social Studies; National Council for the Social Studies; California Teachers' Association; American Association of College and University Professors; AERA; Association for Supervision and Curriculum Development.
. Phi Delta Kappa; Pi Gamma Mu; Alpha Kappa Delta.

Publications

. Helping Students to Think and Value: Strategies for Teaching Social Studies, Prentice-Hall, Inc., 1972; Teacher's Handbook for Elementary Social Studies, Revised ed., with others, Palo-Alto, Addison-Wesley, 1971; "Teaching about Dissent and the Draft," Intercom, New York, Center for War/Peace studies, Jan.-Feb., 1971; "Program Definitions: Logic and Process," The High School Journal, Chapel Hill, Univ. of North Carolina, April, 1970: Peacekeeping: Problems and Possibilities, with others, New York, World Law Fund, 1970; Crime and Criminals: What Can We Do About Them? Prentice-Hall, Inc., 1970; and many more.

DARRAH HALLOWITZ
RESEARCH INTERN, INSTRUCTIONAL & TRAINING SYSTEMS PROGRAM
FWLERD

Academic Background

- A. A. College of Marin 1969
- B. A. Sonoma State College 1971
- M. A. California State University at San Francisco Sociology (in progress)

Professional Experience

- Employed with FWL since September 1971. Presently working on development in Instructional Training Systems.

GEORGE HALLOWITZ
CHAIRMAN, DEPARTMENT OF EDUCATIONAL ADMINISTRATION
CALIFORNIA STATE UNIVERSITY AT SAN FRANCISCO

Academic Background

. B. B. A. College of the City of New York, 1934

. M. S. Columbia University, Social Work, 1941

. M. A. Southern Methodist University, Psychology, 1955

. Ed.D. University of California at Berkeley, 1959

Professional Experience

. Director of camp, youth and community agencies; Training director, Peace Corps and VISTA training at California State University at San Francisco; Former chairman of Department of Interdisciplinary Studies in Education, California State University at San Francisco; Executive secretary of Study Committee on Curriculum Review at CSUSF.

. Research and teaching in education; study of administrative behavior research training programs; direction of community agencies.

Publications

. "An Observation Instrument for Theory Oriented Research into Administrative Behavior." (Co-authors, Fibish and Hart), California Journal of Educational Research, November, 1963.

Professional Organizations and Honors

. Association of State College Professors of Educational Administration; Vice-president, Academic Senate, CSUSF; President, CSUSF Chapter, American Association of University Professors.

JOHN S. HELMICK
VICE PRESIDENT, DIRECTOR WESTERN OFFICE
EDUCATIONAL TESTING SERVICE
BERKELEY, CALIFORNIA

Academic Background

B. S.	Northwestern University, Psychology, 1940
M. A.	Wesleyan University, Psychology, 1942
Ph.D.	Stanford University, Psychology, 1942

Professional Experience

- Program Director for the development of the Admission Test for Graduate Study in Business; Supervised development of materials for New York City first grade assessments, "Let's Look at Children."
- Instructor, Assistant Professor, University of California at Los Angeles, and University of Hawaii; at ETS since 1952, Vice President since 1963. From 1963-68 responsible for ETS instructional programs including workshops for foreign students, summer programs for graduate students in measurement, etc.

Professional Organizations and Honors

- American Psychological Association American Educational Research Association; National Council on Measurement in Educaiton; American Association for the Advancement of Science.

Publications

- "Group factors in simple and discriminatory reaction time,"(with others); "Studies in Motion Sickness,"(with others); "Attempted pupillary conditioning at four stimulus intervals," (with others); "Validity of test items for measuring learning specific to a course;" "Tests can predict success;" "Pursuit learning as affected by size of target and speed of rotation;" "A workbook for College Psychology;" "Reliability or variability;" "Piaget for first grade teachers."

PAUL D. HOOD
ASSOCIATE LABORATORY DIRECTOR FOR PROGRAMS, DIVISION II
FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

Academic Background

- B.A. Franklin College, Social Psychology, 1950
  M.A. Ohio State University, Social Psychology, 1950
  Ph.D. Ohio State University, Social Psychology, 1953

Professional Experience

- Director, Communication Program; Organizer, Bay Area T.V. Consortium, (Human Relations Training for School Staffs); Principal Investigator, Design of a Survey for Training and Personnel Requirements for Educational R,D,D&E; Principal Investigator, Development and Testing of Procedures to Evaluate and Disseminate Information on Training of R&D Personnel; all at Far West Laboratory for Educational Research and Development, Berkeley, Ca.

- Senior Staff Scientist, HumRRO; research in training and utilization of low aptitude personnel; development, validation and implementation of Army-wide NCO Leadership Preparation Program; development and implementation of Army Drill Sergeant Program; consultant on revision of Army Basic Training;
- Director, Bomber Research Unit, U.S.A.F.; research on training, training simulators and evaluation of B-52 aircrews;
- Research Associate, Personnel Research Board, Ohio State University; measurement of crew coordination; research on aircrew composition, leadership, and survival training.

Professional Organizations and Honors

- Fellow, American Psychological Assn.; Fellow, American Sociological Assn.; American Educational Research Assn.; American Society for Information Science; Western Psychological Assn.

- Sigma Xi; Alpha Psi Delta (Grad. Psych. Honorary, Ohio State); University Scholar, Ohio State University, 1949-50.

Publications

- Reports in HumRRO publication series on training research, leadership development programs; reports in Air Force Personnel and Training Research Center (USAF-AFPTRC) series on aircrew training, performance effectiveness and survival training; Far West Laboratory publications on educational information systems; training and arrangements for educational knowledge utilization.

JOHN HOURIGAN

DEVELOPMENTAL ASSOCIATE, MATERIALS DEVELOPMENT
INSTRUCTIONAL & TRAINING SYSTEMS PROGRAM
FWLERD

Academic Background

. B. S.	Siena College, Loudonville, N. Y., Mathematics, 1951
M. S.	University of Southern California, Instructional Technology, 1968
Ph.D.	University of Southern California, Instructional Technology and Educational Psychology, in progress.

Professional Experience

- Instructional materials development, Far West Laboratory for Educational Research and Development, 1972-present;
- Instructional materials development, educational system analysis, marketing proposals and seminars, advanced instructional systems, computer assisted instruction, system project management, System Development Corporation, Santa Monica, Ca. 1956-72;
- Industrial Engineering, George S. May Co., Chicago, Ill., United Air Lines, Chicago, Ill., and Department of the Army, Albany, N.Y.

Professional Organizations

- American Educational Research Association
- Association of Educational Communications and Technology
- National Society of Programmed Instruction

HAL JONSSON
PROFESSOR INTERDISCIPLINARY STUDIES IN EDUCATION
CALIFORNIA STATE UNIVERSITY AT SAN FRANCISCO

Academic Background

- B. A. University of California, Berkeley 1950
- M. A. University of California, Berkeley 1958
- Ph.D. University of California, Berkeley 1964

Professional Experience

- Elementary and Jr. High School Teacher, West Oakland, 1954-57
- Supervisor of Elementary Education and Assistant to Director of Demonstration Schools, U.C. at Berkeley, 1957-58
- College Teaching, San Francisco State College, 1958 to present, U.C. Berkeley, 1961-62.
- Director of Teacher Corps projects from February 1969 to 1971.
- Coordinator for Frederick Burk Elementary School-College observation-demonstration program, 1960-62.
- Consultant Work: Evaulation Consultant, Office of Compensatory Education, California State Dept. of Education, 1965-66; Evaluation Consultant, Teacher Corps, Washington Office, U.S.O.E., 1968; Evaluation Consultant, ESEA Title III Project, Pittsburg, California, 1967-68, and Title I Project, Berkeley, California, 1965-68; Research and Evaluation Consultant, STEP, 1966-68.

Professional Organizations and Honors

- AERA, NCME, CTA (CCUFA), ACSCP, AFT, Phi Beta Kappa; Committee Representative to Planning Committee, AERA panel, Sacramento, 1967.

Publications

- "Interaction of Test Anxiety and Item Difficulty in Mathematics Problem Solving Performance," National Council on Measurement in Education Journal, (in press)

KENNETH D. KENNEDY
DEPARTMENT OF POLITICAL SCIENCE
CANADA COLLEGE, REDWOOD CITY, CA.

Academic Background

. A.A.	College of San Mateo, History, 1962
B.A.	San Francisco State College, Political Science, 1965
M.A.	San Francisco State College, Political Science, 1966
Ph.D.	University of Kentucky, now being completed

Professional Experience

- Research Assistant, Dept. of Political Science, University of Kentucky; Instructor, Cañada College, 1966-72; Co-director Cañada College Learning Lab., 1971-present; Co-founder and Co-editor of Circe, Cañada College Staff Journal; Cañada College Representative to the California Community Colleges Research Committee and Research Conference; President, Faculty Senate of Cañada College, 1967-68, 1972-73.

Professional Organizations and Honors

- American Political Science Association; Western Political Science Association

- Pi Sigma Alpha

BENNET B. KILPACK
CANADA COLLEGE
REDWOOD CITY, CALIFORNIA

Academic Background

- B. S. Southern Oregon College Sociology
- M. S. Southern Oregon College Sociology

Professional Experience

- Director, Child Development Center, Jackson County, Oregon
- Supervisor of Staff Training, Orientation, Intensive Treatment and Out-Professing (Counseling Department), Thiokol Job Corps Center, Clearfield, Utah
- Instructor, College of San Mateo, Sociology Department
- Director-Administrator, University Day School, Menlo Park, California
- Director, Juvenile Hall, Del Norte County Probation Department, Crescent City, California
- Counselor, Ashland High School, Medford Senior High School
- Assistant Director, Bar "O" Ranch for Boys, Del Norte County Probation Department
- Senior Group Supervisor, Hillcrest Juvenile Hall, Belmont, California
- Assistant Director, Upward Bound, Pacific University, Forest Grove, Oregon
- Assistant Professor, Sociology, Pacific University, Forest Grove, Oregon
- Director, Head Start Program, Jackson, Oregon

Professional Organizations and Honors

- State of California - Life Adult Credential
- State of California - Life Junior College Credential

NANCY ADELSON McCUTCHAN
SENIOR DEVELOPER, INSTRUCTIONAL & TRAINING SYSTEMS PROGRAM
FWLERD

Academic Background

. B. A. Mount Holyoke College, Political Science, 1965

. M. A. California State University at San Francisco, Educational D,D&E (in progress)

Professional Experience

. Education Program Specialist, Title I, involved in identification, retrieval, and preparation of information and evaluation reports on local projects (1965-67).

. Far West Laboratory for Educational Research and Development

1967-70, participated in design, development, and writing of packaged information units on elementary science and secondary social studies curricula, and in design and preliminary development of the ALERT information system.

1970-72, served as product development specialist, course form field test coordinator, and editor for the graduate-level, transportable training program, The Educational Information Consultant: Skills in Disseminating Educational Information.

1972-present, development specialist for series/modules of D,D&E training program for entry and paraprofessional level personnel.

Publications

. The American Government Information Unit: Curriculum Alternatives for Secondary Schools (ED 052 114), with others, Berkeley, Far West Laboratory for Educational Research and Development, 1970.

. Far West Laboratory program and evaluation reports (with others).

ROBERT K. McMENAMIN
INSTRUCTIONAL TECHNOLOGIST
TECHNICON INFORMATION SYSTEMS
MOUNTAIN VIEW, CALIFORNIA

Academic background

- B. S. Southeast Missouri State College, Education, 1964
- Additional courses in Personnel Specialist, Technical Instructor, Personnel Management and Data Systems, Instructional Programming, and Effective Writing at Air Force schools.

Professional Experience

- Instructional Programmer-- conducted validation of instructional program for Personnel Data Systems.
- Prepared a task analysis, wrote objectives, performed S-R inventory for teaching points, and wrote and edited.
- Taught courses in Personnel Data Systems, prepared audiovisual aids, developed curriculum, and wrote and edited student workbooks and study guides (USAF).

C. EARL MILLER, JR.
PROFESSOR OF EDUCATIONAL ADMINISTRATION
CALIFORNIA STATE UNIVERSITY AT SAN FRANCISCO

Academic Background

- B. A. University of Idaho, 1948
- M. A. Washington State University, 1954
- Ed.D. University of California at Berkeley, 1960

Professional Experience

- High School teacher and administrator in Central Idaho, 1948-56.
- Part time graduate student at UCB and High School teacher at Piedmont High School, California. Active in local CTA-affiliated teachers' organization, 1956-68.
- Full time student and graduate assistant at UCB. Participated in a number of projects sponsored by the Field Service Center, 1958-60.
- Employment in the Department of Educational Administration, California State University and part time consultant for the Solano County Superintendent of Schools, Fairfield, California (7 years); Reed Union School District, Tiburon, California (3 years); The Coordinating Council for Higher Education (1/2 year) and the San Francisco Chamber of Commerce (several meetings), 1960 to present.

Publications

- Numerous mimeographed reports while at UC. Extensive report writing at the Solano County Office of Education.
- Golfo, Armand J. and Miller, Earl, Interpreting Education Research , William C. Brown, Publishers, 1965. Second edition entitled Interpreting Educational Research, 1970.

MARCIA MOORE
RESEARCH INTERN, INSTRUCTIONAL & TRAINING SYSTEMS PROGRAM
FWLERD

Academic Background

- B. A. Carleton College, 1965
- Graduate seminar in Psychology, Harvard University, summer, 1966
- M. A. San Francisco State College, D,D&E, in progress 1971-72

Professional Experience

- Substitute teacher, Boston Public Schools, Boston, Mass., 1966;
- Research Assistant in Clinical Psychology, Harvard University, 1966;
- Research Assistant, Curriculum Evaluation project, Upward Bound program, based in Boston, 1966-67;
- Research Assistant, Office of the Mayor, City of Boston, and liaison between the Mayor's Office of Public Services and the Public Schools, 1968-69;

- Editorial and research work on ALERT Project, Far West Laboratory for Educational Research and Development, 1970-71;
- Research Intern, D,D&E Consortium, FWLERD, 1971-72.

PATRICIA PALLISTER O'BRIEN
DEAN OF WOMEN
CANADA COLLEGE
REDWOOD CITY, CALIFORNIA

Academic Background

- B. A. Michigan State University Philosophy 1958
- M. A. University of Maryland major in student personnel admin. 1964
  minor in counseling and guidence
  internships in student activities
  and placement offices
- Summer institutes in Junior College student personnel administration at Michigan State University, summer 1966 and Stanford University, summer of 1968.
- Graduate work at University of Arizona, Stanford University and University of Santa Clara, 75 graduate semester hours beyond B.A.

Professional Experience

- Graduate Fellow and Residence Hall Counselor, University of Maryland, College Park, Maryland.
- Student Assistant (Education), Bureau of Indian Affairs, U. S. Department of Interior, Washington D.C., prepared a report of the guidance program in Federal Indian Schools.
- Assistant Dean of Women, University of Arizona, Tucson, Arizona.
- Counselor, Ohlone College, Fremont, California, Counseling and Student Activities Director.

Dean of Women and Counselor, Cañada College, Redwood City, California

Professional Organizations and Honors

- American Personnel and Guidance Association
- American College Personnel Association
  National Advisory Commission TV - The College Student 1971-1974
- California Teachers Association

LIONEL R. OLSEN
PROFESSOR OF EDUCATIONAL ADMINISTRATION
CALIFORNIA STATE UNIVERSITY AT SAN FRANCISCO

Academic Background

- B. A. University of the Pacific, 1946
- M. A. Stanford University, 1947
- Ed.D. Stanford University, 1956

Professional Experience

- Teacher and counselor in secondary schools; teacher in elementary schools; teacher and counselor in junior college; Dean of Student Personnel in junior college.
- County schools of secondary education, child welfare and attendance, and Director of Guidance.
- Assistant Superintendent of schools for curriculum development and special services in city school district.
- College teaching: Long Beach State College; California State University at San Francisco; Stanford University.
- Consultant to:

  Western Association of Schools and Colleges accreditation teams (high school accreditation);

  State Department of Education, Bureau of Compensatory Education;

  New Haven Unified and Desert Sands School Districts (in conducting surveys of the instructional programs);

  California Teachers' Association Professional Standards Commission.

CARL H. RITTENHOUSE, SENIOR RESEARCH PSYCHOLOGIST
EDUCATION RESEARCH PROGRAM
URBAN AND SOCIAL SYSTEMS DIVISION
STANFORD RESEARCH INSTITUTE

Academic Background

- B. A. (1946), M. A. (1948), and Ph.D. (1952) in psychology, Stanford University, also studied at Wilson Teachers College, George Washington University, and Temple University.

Professional Experience

- Head, Training Group, Philco Corporation, Palo Alto, California
- Research scientist, U. S. Army Leadership Human Research Unit, Presidio of Monterey, California; conducted research in leadership, leadership training, and tactical and administrative decision-making.
- Research psychologist, U. S. Air Force Armament Systems Laboratory; worked in areas of perception and motor skills
- Research assistant in psychology of music, Stanford University
- Project leader, educational information utilization studies
- Project leader, technical manpower transferability study
- Project scientist, field experiments at the Research Office of the U. S. Army Combat Developments Command Experimentation Center, Fort Ord, California
- Project scientist, U. S. Army Concept Team in Vietnam.

Professional Organizations and Honors

- American and Western Psychological Association; Phi Beta Kappa; Sigma Xi; Listed in American Men of Science and Who's Who in the West; certified psychologist in the state of California.

Publications

- Articles in various technical journals.

WAYNE ROSENOFF
COORDINATOR, MATERIALS DEVELOPMENT
INSTRUCTIONAL & TRAINING SYSTEMS PROGRAM
FWLERD

Specialized professional competence

- ° Developing tests and instructional materials, programmed learning, dissemination and marketing of instructional products

Representative R&D assignments

- ° Project Director, EIC Training Project: The Educational Information Consultant: Skills in Disseminating Educational Information, 1970-present, FWLERD
- ° Director, Development Component, Instructional and Training Systems Program, June, 1972-present, FWLERD
- ° Staff consultant for development of the Putting Research into Educational Practice (PREP) Information Unit, an activity of NCEC, USOE: "Accountability and educational evaluation," FWLERD
- ° Director of Marketing, Director of Curricular Publications, Assistant Director of Test Development, California Test Bureau/McGraw-Hill, 1955-70

- ° Supervised activities of 16 field representatives throughout the U.S., conducted sales training conferences, planned product workshops on "A systems approach to individualizing instruction."

Other professional experience

- ° Conducted a 1972 AERA postsession

Academic background

- ° Ed.D., educational psychology, UCLA, 1957
- ° M.S., physical education, UCLA, 1950
- ° teaching fellow, graduate studies, UCLA, 1940-42
- ° teaching credential, University of Washington, 1940
- ° B.S., physical education, sociology, University of Washington, 1935-39

Publications

- ° Lessons for self-instruction, a programmed multi-level series in reading, math, and English, CTB/McGraw-Hill, 1967
- ° Strengthening the student's learning through independent study, CTB/McGraw-Hill, 1967
- ° The educational information consultant : skills in disseminating educational information, Berkeley, California: FWLERD, 1971

Professional associations and honors

- ° American Educational Research Association
- ° California Educational Research Association
- ° Adult Education Association
- ° Phi Delta Kappa

ENOCH I. SAWIN
PROFESSOR OF EDUCATION
CALIFORNIA STATE UNIVERSITY, SAN FRANCISCO (CSUSF)

Academic Background

- B. S. University of Chicago, Mathematics, 1947
  M. A. University of Chicago, Education, 1948
  Ph.D. University of Chicago, Education, 1951
- Post-doctoral: Stanford University, 1967-68

Professional Experience

- Faculty, Syracuse University, 1950-52; Professor (GS-13), Air University, Maxwell Air Force Base, Alabama, 1952-60; Professor, California State University, San Francisco, 1960-present; Educational research, curriculum development and evaluation, developing new training programs, training others in educational research.

Professional Organizations and Honors

- American Educational Research Association; California Educational Research Association; American Psychological Association; Association of Supervisors of Curriculum Development.

Publications

- On writing team (Ch. 7 and 8) for 1958 A.S.C.D. Yearbook, A Look at Continuity in the School Program; "Broadening the Base in Evaluation," School Review, Spring 1959; "A Proposed Model in Evaluation," (with Hilda Taba) in Educational Leadership, October, 1962; "The Air Force ROTC Curriculum Evaluation Project"(with J. F. Smith), in Improving College and University Teaching, Spring, 1966, pp. 81-86; member of committee that prepared Taxonomy of Educational Objectives, (D. R. Krathwohl, et. al.); Evaluation and the Work of the Teacher, Wadsworth, 1969.

MONICA SCHMITZ
COORDINATOR, IMPLEMENTATION SYSTEMS
INSTRUCTIONAL & TRAINING SYSTEMS PROGRAM
FWLERD

Academic Background

- B. A. University of Minnesota, Sociology, 1967
- M. S. (in progress) California State University at San Francisco, Industrial Psychology

Professional Experience

- Group Living Supervisor, Hennepin County Juvenile Detention Center, 1963-68.
- Information and Referral Specialist, Pilot City Regional Center, (Minneapolis, Minn.), 1968-69.
- Placement supervisor and office manager for a business-oriented personnel agency, 1969-70.
- Instructional materials development, Far West Laboratory for Educational Research and Development, 1970 to present.

Publications

- The educational information consultant: skills in disseminating educational information, an instructional system, with Bela Banathy, Wayne Rosenoff, et al., Berkeley, Far West Laboratory, 1972.

DIANA P. STUDEBAKER
RESEARCH INTERN, INSTRUCTIONAL & TRAINING SYSTEMS PROGRAM
FWLERD

Academic Background

- B. A. Mills College, English & French, 1964
- M. A. University of California, Berkeley, Comparative Literature, 1966
- Secondary Credential, State of California, English & French, 1966

Professional Experience

- 1966, substitute teacher, Oakland public schools
- 1968-71 Berkeley Y.M.C.A., clerical and publicity work.
- 1971-present, Far West Laboratory, clerical, editorial and limited development and production responsibilities for D,D&E Consortium.

ELAINE N. TAYLOR
SENIOR RESEARCH SCIENTIST
HUMAN RESOURCES RESEARCH ORGANIZATION
MONTEREY, CALIFORNIA

Academic Background

- B. S. Pennsylvania State University, Physical Education, 1949
  M. A. Bowling Green State University, Psychology, 1954
  Ph.D. State University of Iowa, Psychology, 1954

Professional Experience

- Senior Research Scientist, performance of low aptitude personnel, U.S. Army; Senior Research Scientist, preparation of programmed instructional materials, NCO leadership course, U.S. Army; Director, Design, Analysis, and Editing, Fort Benning, Georgia; Member of faculty at Conference on "Collaborative Styles in Community Mental Health Services for Children and Youth," sponsored by the State of California Dept. of Mental Hygiene, June 1-2, 1972.

Professional Organizations and Honors

- American Psychological Association; American Association for the Advancement of Science.

- The Society of Sigma Xi.

- Winner, 1972 Publications Contest Awards, Society for Technical Communication Publications Contest, Washington D.C. Area, HumRRO Technical Report 71-18 - Preliminary Handbook on Procedures for Evaluating Mental Health Indirect Service Programs in Schools, (with Ernest K. Montague).

Publications

- Performance in Five Army Jobs by Men at Different Aptitude (AFQT) Levels: 1. Purpose and Design of Study, 2. Development and Description of Instruments, 3. The Relationship of AFQT and Job Experience to Job Performance, 4. Relationships between Performance Criteria. (with Robert Vineberg), HumRRO, November 1970 and June 1972; Considerations on the Design of Instructional Systems for Employer Based Career Education, HumRRO, May, 1972 (with others); Summary and Review of the VOLAR Experiment, 1971: Installation Reports for Forts Benning, Bragg, Carson and Ord, and Permanent Party Studies, (with Robert Vineberg), HumRRO, April, 1972; Preliminary Handbook on Procedures for Evaluating Mental Health Indirect Service Programs in Schools, HumRRO Technical Report 71-18, August 1971 (with Ernest Montague); Effects of Aptitude (AFQT), Job Experience, and Literacy on Job Performance; Summary of HumRRO Work Units UTILITY and REALISTIC, (with others), HumRRO, Feb. 1971; and many others.

JAMES MORGAN UPTON
CANADA COLLEGE
REDWOOD CITY, CALIFORNIA

Academic Background

A. B.	Gonzaga University	Honors Classical	1957
A. M.	Gonzaga University	Philosophy	1958
M. S.	Seattle University	Mathematics	1962

National Science Foundation, Summer Institutes

- Santa Clara University, Theological Studies. Three of four years toward S. T. M. degree.

Professional Experience

- Bellarmine High School, Tacoma, Washington, 1958-1965
- Seattle University, Instructor in Philosophy (Logic, Metaphysics) during Spring Quarter, 1964 and Instructor in Honors Program, academic year of 1964-65
- Instructor in Philosophy (Seminar on Teilhard de Chardin) during Spring Quarter, 1965
- San Jose State
- College of San Mateo

Professional Organizations and Honors

- Provisional General Certificate, Washington State, 1958-1963
- Standard General Certificate, State of Washington, valid from July 1, 1961
- Life Secondary June 1967, California
- Life Junior College June 1967, California

JOSEPH S. WARD
COORDINATOR, ASSESSMENT DEVELOPMENT
INSTRUCTIONAL & TRAINING SYSTEMS PROGRAM
FWLERD

Academic Background

- B. A. Tulane University, Psychology, 1949
  M. A. Tulane University, Psychology, 1958
  Ph.D. Tulane University, Psychology, 1962

Professional Experience

- Senior Staff Scientist, HumRRO; Project Director for development of programs for combat skills, medical skills, and psychomotor skills; job analysis of combat skills; development of management of training courses; consultant on evaluation of Army weapons systems, training techniques, and combat doctrine.

- Faculty, Dept. of Psychology, Tulane University; Faculty, Dept. of Education, Auburn University; Faculty, Dept. of Psychology, Monterey Peninsula College; Faculty, Dept. of Educational Administration, San Francisco State College.

Professional Organizations and Honors

- American Psychological Association.

- The Society of Sigma Xi.

Publications

- "Motivational Properties of Frustration: II, Frustration Drive Stimulus and Frustration Reduction in Selective Learning," *Journal of Experimental Psychology*, 1954, (with A. Amsel); *Frustration and Persistence: Resistance to Discrimination Following Prior Experience with the Discriminanda*, (with A. Amsel; *Development and Evaluation of an Integrated Basic Combat/Advanced Individual Training Program for Medical Corpsmen* (MOS 91A10), HumRRO, 1970 (with others); Evaluating Proficiency in the Use and Maintenance of Infantry Weapons, Eighth Annual Army Human Factors Engineering Conference, 1962, (with Thomas F. Nichols), *Design of a Functional Competence Training Program for Development, Dissemination, and Evaluation Personnel at Professional and Paraprofessional levels in Education*, Dec., 1970, FWLERD (with P. Hood and others); *Final Report: A Functional Competence Training Program for Development Dissemination and Evaluation Personnel at Professional and Paraprofessional levels in Education*, Dec. 1971, FWLERD (with P. Hood and others); "Development Strategies Used by the Far West Consortium for D,D&E Training," April, 1972, AERA Conference paper.

NORMAN E. WALLEN
PROFESSOR, DEPARTMENT OF INTERDISCIPLINARY STUDIES IN EDUCATION
SAN FRANCISCO STATE COLLEGE

Academic Background

- A. B. University of Rochester, Economics, 1950
  Ed.M. University of Rochester, Educational Psychology, 1952
  Ph.D. Syracuse University, Psychology, 1956

Professional Experience

- Research Instr., Dept. of Special Education, Syracuse University, 1955-56; Statistical Consultant to Faculty and Students, Dept. of Psychology, Syracuse University, 1955-56; Ass't.Professor, Dept. of Ed. Psych, University of Utah, 1956-60; Assoc. Professor, 1960-65; Professor, 1965-67; Professor, Dept. of Interdisciplinary Studies in Education, San Francisco State College, 1967- present.

- Director, three USOE Research Projects, 1961-66; Phi Delta Kappa Research Project, 1966; Taba Curriculum Development Project, 1967-69; Psychologist, Tri-County Mental Health Traveling Clinic, 1962-66; San Juan Mental Health Traveling Clinic, 1963-65; Consultant, Tri-University Project, Evaluation, 1968-70; Institute for Staff Development, Miami, 1968-present; San Francisco Unified School Dist., 1969-70; School Desegregation Study, University of Wisconsin, 1969-present; Consulting Editor, Taba Social Science Program, Addison-Wesley, 1971-present; Research Coordinator, STEP project, 1967-1970.

Professional Organizations and Honors

- American Psychological Association; American Educational Research Association; American Association of University Professors; American Federation of Teachers.

- Phi Delta Kappa; Sigma Xi.

Publications

- Activity Book for People in Communities (with M. Wallen), Addison-Wesley, Menlo Park, 1972; Research and Teacher Education. Final Report (with others), State of California Division of Compensatory Education, 1970; The Taba Curriculum Development Project in Social Studies. Final Report, (with others), USOE Project No. OE-6-10-182, Addison-Wesley, 1969; "Improving Elementary Social Studies: An Idea Oriented Approach", Elementary School Journal, 70, 154-163, 1969, (with others);"The Use of Teaching Modules to Study High Level Thinking on the Social Studies," Journal of Teacher Education, 18, 495-502, 1967, (with others); et al.

Appendix E: TRAINEE INFORMATION

Tables and Resumes

Entry Professional Program:
California State University at San Francisco,
Cycle I and Cycle II students

Paraprofessional Program:
Cañada College,
Merritt College,
Contra Costa College
students

ENTRY PROFESSIONAL STUDENTS

California State University at San Francisco - Cycle I students

Nancy

Nancy attended Mount Holyoke College where she received a B.A. degree in Political Science. She worked for USOE for two years as an Education Program Specialist and has been with the Far West Laboratory for the past three and a half years. At the Lab, as a Program Assistant, Nancy has been involved with the development of information units and has been training in information dissemination. She is interested in expanding this training through the D,D&E program and in learning more about the development of systems.

Carol

Carol received her B.A. degree in the History of Art from the University of Chicago. She taught for a year at Walden School in Berkeley and has done some substitute teaching in the Albany (California) public schools. Carol came to the Far West Laboratory two years ago and has been employed there as a Research Intern. Her work involved research and writing about educational developments. Carol is interested in working as a curriculum consultant to schools and envisions starting a school some day.

Margot

Margot received her B.A. in French and Art from Stanford University. She has been extensively trained in metalsmithing, dance, and teaching and has worked professionally in all of those fields. Margot's metalwork and jewelry has been exhibited often in Marin County shows. She has taught Art and Spanish to children and has been the Director of the Kindergarten Program at the Marin Country Day School. Margot has been with the Far West Laboratory since 1970 as a Program Assistant. At the Lab she has been the Director of the Language Development Program of Follow-Through, has developed materials for Kindergarten through Third Grade, has done classroom demonstrations of video-tapes, and has authored "Language Experience", Volumes I and II. Margot is interested in using her D,D&E training to develop an "integrated" curriculum for use in public schools. She hopes to become a consultant and possibly a teacher of various age levels, including adults as well as children.

Nancy

Nancy attended Occidental College where she received her B.A. degree in Latin American Affairs. She later studied the twentieth century Bolivian novel with the aid of a Fulbright Grant to La Paz, Bolivia. She was a Research Assistant and Writer with the Educational Research Council of America in Cleveland from 1965 to 1968. In 1969 Nancy worked in Menlo Park, California with Educational Consulting Associates as a Consultant. She later did consulting work for Lockheed Education Systems in Sunnyvale. Nancy has been with the Far West Lab since 1970 as a Program Assistant in the Communication Program. In that capacity she has designed and developed IPMS training units. Nancy is interested in expanding her knowledge of educational development work through the D,D&E program.

Table 2

Entry Professional Student Data

California State University at San Francisco

	Cycle I			Cycle II
	Fall '71	Sp. '72	Fall '72	Fall '72
Race: Caucasian	15	12	8	8
Black	9	9	6	8
Oriental	0	0	0	1
Sex: Male	1	2	1	3
Female	23	19	13	14
Department:				
ISED	13	12	7	7
Ed. Admin.	10	8	6	10
Other	1	1	1	0
Internship:				
Teaching	1	1	1	8
Special Pub. School	3	3	3	2
D,D&E Agency	20	17	10	5
Other				2
Previous D,D&E experience:				
none	6	7	4	17
0 - 2 yrs.	10	8	8	0
3 yrs. or more	8	6	2	0
D,D&E Course Enrollment:				
Planning & Design	24	x	3	17
Info/Data	24	x	0	17
Communication Skills	x	16	x	x
Evaluation	x	15	x	0
Dev. Engineering	x	14	x	x
Dissemination/Marketing	x	x	12	0
Engineered Internship	24	10	0	17
Non-D,D&E Courses Taken:				
one course	10	5	5	0
two courses	5	7	1	0
three courses	0	1	3	0
more than three	0	0	1	0
Age: 20 - 25 yrs.	8	9	2	3
25 - 30 yrs.	10	7	7	7
30 & above	5	4	4	5

* information not available at this time   x not offered

Celia

Celia received her B.A. from the University of California at Berkeley in Sociology. She minored in English and Spanish. Celia has been with the Far West Laboratory for the past eight months as a clerk-typist. She is interested in expanding her knowledge and bettering her career opportunities in various areas of educational research through her involvement in the D,D&E program.

Doris

Doris received her Bachelor of Science degree from California State College at Hayward and her elementary teaching credential from the University of California. She taught fifth and sixth grades for one year at Longfellow School. Doris is interested in continuing her work in the public schools and wants to prepare herself for positions of leadership through her involvement in the D,D&E program.

Patricia

Patricia received her A.B. degree in English from the University of South Carolina. She taught grades three, five, and six for four years. She worked for more than two years with the Education Division of Xerox where she was a training specialist. Patricia has been with the Far West Laboratory for the past two years as a Program Assistant, a position which entails research, writing, and editing of education products. She is interested in expanding her knowledge and skills in the D,D&E program so that she can research and develop innovative educational products.

Marie

Marie received her B.A. in Speech and Drama from the College of St. Catherine. She worked for five months with Materials for Today's Learning as a secretary. Marie taught Speech, Drama, English, and Forensics for three years at St. Michael High School. She has been involved in directing a Montessori program in St. Paul. Marie is interested in developing programs and materials for pre-school children.

Lorraine

Lorraine received her B.A. in economics from Southern University in Baton Rouge. She substitute taught at the elementary and secondary levels for four months in the Louisiana public schools. Lorraine has been doing secretarial work for the past two and-a-half years at the Educational Testing Service in Berkeley, California. She wishes to pursue a career in Development.

Meredith

Meredith attended the University of Arizona and received a B.A. from there in 1964 in Elementary Education. She taught second and fourth grades for five years in Orange County (California) and has been at the Far West Laboratory for one year as Research Intern in the department of Teacher Education. Meredith would like to develop competencies in D,D&E to aid her in her work at the Lab and to help prepare her for future work in the public schools.

Lillian

Lillian received her B.A. in Social Work from the University of California. She worked for the Children's Home Society in Oakland for four and-a-half years before coming to the Far West Laboratory. At the Lab Lillian first worked for the Personnel Department and then became Administrative Assistant to the Utilization Division. She hopes to utilize her D,D&E skills in agencies like the Far West Laboratory.

Barbara

Barbara attended the University of Oregon where she received her B.A. degree in Journalism. She has been with the American Institutes for Research for the past five years researching and developing training materials. Barbara expects to improve her job efficiency through development of D,D&E skills.

Darrah

Darrah attended Sonoma (California) State College and received her B.A. from them in Sociology. She has worked for two summers as a counselor at a children's camp in San Rafael. Darrah is presently working with the Consortium at the Far West Laboratory as a Research Intern. She is interested in teaching sociology at the college level and developing materials for sociological studies.

Carolyn

Carolyn received her B.A. in anthropology from Stanford University. She worked as a Research Assistant at Stanford Research Institute for five months and then joined the American Institutes for Research, also as a Research Assistant. She has been with them for the past eight months. Carolyn is interested in using her D,D&E skills to do work in educational research and development.

Cynthia

Cynthia received her B.A. in Psychology from the College of the Holy Names and her Elementary and Secondary Teaching Credential from the University of California. She worked for seven years at the Berkeley Recreation Department as Playground Leader and for one year as a sixth grade teacher at the Longfellow Elementary School. She is interested in studying Educational Administration through the D,D&E program.

Marcia

Marcia attended Carleton College where she received a B.A. degree in Sociology. Since then she has earned some additional graduate credits in Psychology at Harvard University. Marcia worked for one yar as a research secretary for the city of Boston, for six months as a Research Assistant in the Upward Bound program at Harvard, and as a substitute teacher for one yar in the Boston public schools. She has been at the Far West Laboratory for almost two years as proofreader and copyeditor. Marcia is interested in organization and curriculum as it is applied in the development of alternative schools.

Sheila

Sheila received her B.A. in Early Childhood Education from the University of North Carolina. She taught for a total of seven years in North Carolina and in Richmond, California before coming to the Far West Laboratory. At the Lab Sheila has been a Research Intern for the past year-and-a-half and has been primarily involved with curriculum analysis. She is interested in pursuing a career in the public schools in a leadership position and hopes that the D,D&E program will aid her in this area.

Timiza

Timiza received her AA in Social Science from Merritt College and her B.S. from California State College at Hayward. This past summer she completed the requirements for her Elementary Teaching Credential at the University of California at Berkeley. Timiza taught second and third grades for one year and preschool through Project Headstart for another year. She is interested in starting a private school for non-shite children and hopes that her studies in D,D&E will aid her in this endeavor.

L.E.

L.E. received a B.A. degree in Psychology from Sonoma State College. He worked at Oonoma State for two-and-a-half years as Audio-Visual Supervisor. L.E. has been with the Far West Laboratory for the past year and-a-half as Research Intern in the Multi-Ethnic Program. He is interested in developing D,D&E skills to help him devise relevant materials for use with non-white children in community schools.

Kashan

Kashan received her B.A. in Social Science and her Elementary Teaching Credential from San Francisco Rtate College in 1971. She has been with the Far West Laboratory for the past few months as Research Intern doing evaluation of Lab products. Kashan is interested in going into the development area of Education.

Cycle II Student Biographies

Francis

Frank received his B.A. in History from the University of California at Davis, continuing his education in the five year Intern Teaching program where he received his Standard Elementary Teaching Credential. He tuaght for five years in the Davis area, acting as Social Studies Coordinator (K-12) for two years. Frank has offered district and college inservice courses, was a member of the KQED Social Studies committee, has been active in the East Bay Council for Social Studies, and gave a Social Studies Workshop for the State Social Studies Convention held in Fresno. He is currently seeking a Supervisor of Curriculum Credential at CSUSF, and hopes that the D,D&E program will prepare him to develop curriculum programs.

Lorna

Lorna attended New York State University at Buffalo, where she received a B. S. in Mental Retardation and Elementary Education. She taught Special Education in the Buffalo School District for a year, and has taught in the Berkeley Unified School District for the past two years. She will be teaching 5th graders this fall. Lorna is presently completing work for a California Life Credential. She is interested in entering the development area of education to increase her qualifications for working with non-white children.

(Edie) Marie

Marie received a B.A. degree in English from CSUSF. For six years she worked for the U. S. Forest Service doing computer programming and documentation. She has recently become Public Service Careers Coordinator for Region V of the United States Forest Service. She plans to develop an employment program to hire, train, and counsel the disadvantaged. Marie intends to extend her activities into the community and public school systems, and she hopes that D,D&E training will help prepare her to develop these programs.

Elizabeth

Elizabeth earned a B. A. degree from the University of California at Berkeley, taught at Oakland High School for three years, then moved to the Monterey peninsula where she taught at Fort and Monterey Peninsula College in the Evening Division. She is presently writing curriculum materials on journalistic skill development and teaching in Benner Jr. High School in Sunnyvale. Elizabeth is interested in developing programmed and packaged materials with an affective and cognitive design for the junior high school level.

Carolyn

Carolyn received her B. A. in Chemistry from California State College in Hayward. She taught high school drop-outs in a Neighborhood Youth Corps. in Vallejo, California, for one year. During the past year, Carolyn has coordinated a Model Cities Federally Funded Educational program administered by OPS. She is interested in developing materials that are environmentally related.

Esther

Esther attended the University of California at Davis, where she earned a B. S. degree in Child Development. She has worked with counselling, testing, and statistics, and spent a year as a program assistant with the Wright Institute administering a Field Study Program. Esther hopes to enter research and curriculum development for handicapped children.

Barbara

Barbara has a B. A. in Art History, and taught grades 3-6 in the American School in Conakiy, Republic of Guinea, West Africa. She has an elementary teaching credental from San Jose State College, and taught 4th and 6th grades for two years and a summer school African enrichment program in the Ravenswood School District. During the past three summers she has taught pre- and school age children in the San Francisco School District Childcare Centers.

Marilyn

Marilyn received her B. A. degree with a Social Science Field Major with an emphasis in Sociology and Psychology from the University of California at Berkeley. She is interested in designing and evaluating a curriculum to teach Spanish to pre-school children through games, music, play and the arts.

Jimmie

Jimmie earned a B. S. in Elementary Education with a minor in the Social Sciences from the University of Nebraska at Omaha, then taught 5th grade in the Omaha Public Schools for two years. After moving to Berkeley, Jimmie taught 4th grade for two years and has been a skills specialist for a year, a job which entails working with both teachers and children in improving reading and math skills.

Dianne

Dianne received her B. A. degree in Classics from the University of Arizona. She is now employed in the Evaluation Division of the Early Childhood Education Program at the Far West Laboratory. She is particularly interested in developing classroom materials which will be relevant, and disseminating them into the educational system.

Carrie

Carrie received her B. S. in Education from the University of Nebraska at Omaha. Following graduation she migrated to Oakland, where she has been employed by the Oakland Public Schools for the past six years. Since the school in which she works has a primarily Black student body, she is very interested in developing materials which will help Black children learn.

Major

Major earned his B. S. in Sociology and Family Relations from Weber State College in Ogden, Utah. During his stay in Ogden he taught in the ethnic studies department and also worked there as a program and curriculum developer. He is now working as assistant coordinator of a federally funded Model Cities educational program administered by OPS.

Rosemary

Rosemary received her B. A. in Psychology from the University of California at Riverside. She is currently a student at CSUSF and is particularly interested in educational research and the development of instructional materials. She will begin her internship at SRI this fall.

Gail

Gail earned a B. Ed. in English and Social Sciences from the University of Hawii. She has taught English in Hawaii, substituted for the Oakland Public Schools, and substituted and taught English to Asian-Americans in San Francisco. Her main interest is curriculum development slanted towards helping Asian-American students.

Table 3.

Paraprofessional Student Data

	Pre-Service			Continuing Education					
	Canada College			Merritt College			Contra Costa College		
	F'71	Sp.'72	F'72	F'71	Sp.'72	F'72	F'71	Sp.'72	F'72
Race: Caucasian	31	12	27	1	1	1	0	0	0
Black	0	4	3	5	4	4	8	8	8
Oriental	1	2		0	0	0	0	0	0
Sex: Male	25	14	11	1	0	0	5	4	4
Female	10	6	19	5	5	5	3	4	4
Internship:									
public school	2	2	1	0	0	0	0	0	0
D,D&E Agency	2	2	1	6	5	5	8	8	8
Other	4	4	1	0	0	0	0	0	0
Paid	3	5	3	6	5	5	8	8	8
Volunteer	5	3		0	0	0	0	0	0
Junior College units already taken:									
0 - 15	16	6	11	2	3	3	4	1	0
15 - 30	13	4	13	2	2	2	1	4	1
30 - 45	4	4	5	1	0	0	1	1	4
45 - 60 & above	3	6	11	1	0	0	2	2	3
D,D&E course enrollment:									
Planning & Design	6	x	3	x	5	5	8	x	x
Info/Data	23	x	17	4	x	x	x	8	x
Communication Skills	15	x	13	2	4	4	8	x	x
Evaluation	x	15	x	x	x	x	x	x	8
Developmental Engineering	x	6	x	x	x	x	x	8	x
Internship	8	8	3	6	5	5	8	8	8
Non-D,D&E courses taken:									
one course	5	6	*	1	1	1	0	0	*
two courses	3	4	*	2	2	2	0	0	*
three courses	3	4	*	0	0	0	7	6	*
more than three	2	2	*	0	0	0	1	2	*
Age: under 20	9	4	2	0	0	0	0	0	0
20 - 25	21	8	16	1	3	3	6	6	6
25 - 30	4	8	4	1	3	3	2	2	2
over 30	2	5	8	4	1	1	0	0	0

* information not available at this time   x not offered

PARAPROFESSIONAL STUDENTS

Cañada College, San Mateo Community College District

Gabriel -

Male, married. Lives in East Palo Alto. Graduate of Abeokuta High School, Abeokuta, Nigeria. Completed 31 to 45 units of credit at Skyline College before enrolling in DD&E courses.

Howard

Male, single. Lives in San Carlos. Graduate of San Carlos High School. Completed 31 to 45 units of credit at Cañada College before enrolling in DD&E courses.

Lawrence

Male, single. Lives in Redwood City. Graduate of Sequoia High School. First-time freshman student at Cañada College.

Mario

Male, married. Lives in Redwood City. Graduate of Jefferson High School in 1947. Moved to this area from Seattle, Washington. Has completed 46 to 60 units of credit at San Francisco State College and other colleges before enrolling at Cañada.

William

Male, single. Lives in Redwood City. Graduate of San Carlos High School. Has completed 16-30 units of credit at College of San Mateo.

Barnett

Male, single. Lives in Redwood City. Graduate of Woodside High School. Born in Long Beach, California. Has completed 31 to 45 units at Cañada College.

Bruce

Male, single. Lives in Menlo Park. Graduate of Woodside High School. Born in Los Angeles, California. Has completed 15 units at Cañada College.

Gayle

Female, married. Lives in Redwood City. Graduate of Pioneer High Schoo, San Jose. Born in Ventura City. Has completed 16 to 30 units at San Jose State College, and Palomar College, before attending Cañada College.

Lori

Female, single. Lives in Redwood City. Graduate of San Carlos High School. Born in San Francisco, California. First-time freshman.

John

Male, single. Lives in Menlo Park. Graduate of Woodside High School. Born in Rochester, New York. First-time freshman.

George

Male, single. Lives in Menlo Park. Graduate of Menlo Atherton High School. Born in Seoul, Korea. First-time freshman.

Susan

Female, single. Lives in Millbrae. Graduate of Capuchino High School. Has completed 16 to 30 units at College of San Mateo.

David

Male, single. Lives in Menlo Park. Graduate of Minerva High School, in Illinois. Has completed 15 units at Cãnada.

Jimmy

Male, single. Lives in Redwood City. Graduate of San Carlos High School. Has completed 15 units at Cañada College.

John L

Male, single. Lives in Atherton. Graduate of Menlo-Atherton High School. Has completed 15 units at Cañada.

Sylvia

Female, single. Lives in Half Moon Bay. Graduate of Woodside High School. Has attended University of Pacific, Stockton; and Cabrillo College in Santa Cruz, and completed sixteen to 30 units before attending Cañada. Born in Boston, Massachusetts.

Shamin

Male, single. Lives in Redwood City. Graduate of St. Joseph's College, Calcutta, India. Born in Calcutta, India, is a foreign student completing 16 to 30 units at Canãda College.

Linda

Female, married. Lives in Redwood City. Graduate of Arroyo High School, San Mateo, California. Previously attended California State College, at Hayward, and Chabot College, completing up to fifteen units. Born in Alameda, California.

Timothy

Male, single. Lives in San Carlos. Graduate of San Carlos High School. Born in Redding, California. Is completing 15 units at Cañada College.

Richard

Male, single. Lives in Redwood City. Graduate of Menlo Atherton High School. Born in San Francisco, California. First-time freshman.

Edmund

Male, single. Lives in East Palo Alto. Born in Lagos, Nigeria. Is attending Cañada on foreign student visa. 16 to 30 units.

Samuel

Male, single. Lives in Redwood City. Born in Tel-Aviv, Israel. Graduate from "Kalai" Givatain, Israel. Now taking 15 units at Cañada College.

John

Male, single. Lives in San Mateo. Graduate of Hillside High School. Is completing 15 units at Cañada College. Born in Evanston, Illinois.

Thomas

Male, married. Born in Richmond, Virginia. Attended High School there. Completing 15 to 30 units.

Don

Male, single. Born in Pannipitiya, Ceylon. Attended high school there. Also attended Institute of Practical Technology, in Ceylon. Born in Ceylon, is a citizen of that country and attending Cãnada on a student visa, having completed up to 30 units.

Arthur

Male, married. Graduated from Escondido High School. Born in Calgary, Alberta, Canada, is an immigrant. Previously attended Idaho State College in Pocatello, Idaho, Boise Junior College, in Boise, Idaho, and Merritt College in Oakland; having completed up to 60 units.

Elizabeth

Female, married. Lives in Menlo Park. Born in Sharon, Connecticut. Graduated from Menlo Atherton High School. First-time freshman.

Rosemarie

Female, single. Lives in Redwood City, California. Graduate from Sequoia High School. Is completing up to 30 units at Cañada.

Frank

Male, single. Lives in Menlo Park. Did not graduate from high school. Born in San Francisco. Is completing up to 15 units at Cañada College.

Barbara

Female, single. Lives in Hillsborough, California. Graduate of San Mateo High School. Born in San Mateo. Is taking up to 15 units at Cañada College.

William S

Male, single. Lives in Menlo Park, California. Born in Rochester, New York. Completed high school there. Also attended S.U.N.Y. in New York, and has up to sixty units.

Nelia

Female, single. Lives in Belmont, California. Born in San Francisco. Attended Notre Dame High School.

David W

Male, single. Lived in Hongkong, and is a citizen of Britain. Has attended Royden House College, and New Method College, apparently both in Hongkong.

Donald

Male, married. Lives in Menlo Park, California. Born in Oakland, California. Graduated from Westmoor High School. First-time freshman.

Margaret

Female, married. Graduated from Westmoor. Born in San Francisco. Is taking up to 15 units at Cañada College.

Merritt College

Catherine

Cathy attended high school in Cleveland and later received a certificate of Secretarial Arts from the Ashville Industrial Education Center in North Carolina. Since then she has earned 70 credits in Afro-American Studies from Merritt College in Oakland. Cathy has worked as a legal secretary and as a medical secretary and has been at the Far West Laboratory for the past two years, first as a secretary and then as Office Manager. She hopes to gain more knowledge and proficiency in Educational Research and Development and hopes to go on for a higher degree after she completes the DD&E program.

Fannie

Fannie went to high school in Memphis and attended Tennessee State College for one year in Business Education. She has taken courses since then at Merritt and at the University of California Extension. Fannie worked for two years at the post office as Mail Clerk and doing keypunch. She worked for the IRS from 1963 to 1965 retrieving and filing income tax returns. From 1965 to 1968 she did coding, supervising, and keypunch for the Bay Area Transportation Study Commission. Fannie has been at the Far West Lab since 1969 as Research Intern, a job which entails collecting and organizing data and field testing. Her studies in DD&E pertain directly to the field in which she is working and she hopes to better her chances for advancement.

Nathaniel

Nathaniel went to high school in Houston and then worked for five years as a merchant seaman. He has been at the Far West Lab for the past four months as Mail Clerk. Nathaniel is interested in accumulating college credits and would like to get some training so he can enter the field of Educational Research and Development.

Olga

Olga has done course work at Merritt College in the field of Liberal Arts. She has worked as a secretary since 1942 at Superior Sheet Steel (1942-47), Colorado State University (1953-56), United States Department of Agriculture (1962-70) and the Far West Laboratory (1970 to the present). Olga would like to raise her professional level as a result of DD&E courses and is interested in expanding her areas of knowledge and keeping up with change in the field of education.

Jacqueline

Jackie graduated from Berkeley High School and then took courses in Business at Merritt College for two years. She has been at the Far West Lab. for the last year and a half as a secretary for Forward Planning. She is involved in the D,D&E program because she is interested in furthering her education and improving her employment opportunities.

Jean

Jean has been taking college courses and is working towards an A. A. degree. She is presently working as a secretary in the Finance Department. She is interested in taking the D,D&E courses to gain credit towards her degree and to increase her understanding of the functioning of the Laboratory.

Bobbie

Bobbie worked for five years at the Naval Supply Center as a Procurement Clerk, and three years as traffic director, logging commercials, at a radio station, before coming to the Far West Laboratory, where her present position is Personnel Records Clerk. She is taking the D,D&E courses to gain college credit.

Contra Costa College

Robert

Robert attended Contra Costa Junior College for two years. He worked for a year at the South Side Center in Richmond as a typist and later with the Concentrated Employment Program as Supply Clerk. Robert is now employed at the Far West Laboratory as Research Trainee. He is interested in making social change through education.

Deborah

Deborah attended Contra Costa Junior College for six months. She worked there during the summers of 1969 and 1970. Deborah has also been employed by Montecino Elementary School in Martinez, California. She has been with the Concentrated Employment Program and is now employed at the Far West Laboratory as Research Trainee.

Dexter

Dexter attended Contra Costa Junior College for one semester in Business. He has worked for Safeway, Transbay, Standard Oil of Richmond, and Western Can Company. Through his interest in science and his involvement with the Concentrated Employment Program, Dexter obtained employment at the Far West Laboratory as a Research Trainee in the New Careers Program.

Macky

Macky attended the Mt. Hood Community College in Gresham, Oregon for the better part of a year where he studied music. He has worked with the White Stag Manufacturing Company, the Rheem Manufacturing Company, and Safeway's Richmond warehouse. Through his involvement with the Concentrated Employment Program, Macky obtained employment as Research Trainee in the Far West Laboratory's New Careers Program.

Georgia

Georgia worked for seven years as a clerk typist and secretary, and two as a sales clerk before joining the Concentrated Employment Program. She is now employed as a Research Trainee in the Career Education Program at the Far West Lab.

Linda

Linda attended the Linton Business School for one semester and Contra Costa Junior College for one year. She has worked as a salesperson with C-Shore Sales and as a Clerk-Carrier at the Berkeley, California Post Office. She has been involved in the Concentrated Employment Program since April of this year and is now employed in the New Careers Program at Far West Laboratory as a Research Trainee.

Ernest

Ernest received a Certificate of Completion from Prentiss Junior College in Prentiss, Mississippi in 1966. He attended Huston-Tillotson College in Austin, Texas the following year. Ernest studied Psychology and Child Development. He substitute taught at the junior high level in Gulfport, Mississippi and worked as a day care instructor in Austin, Texas. Ernest wishes to expand his career in education through his involvement in the D,D&E program and his employment at the Far West Laboratory as Research Trainee.

Rosella

Rosella attended high school in Fresno and Berkeley, California and majored in business. She worked as a waitress from 1966 to 1969. Rosella is now employed at the Far West Laboratory as a result of her involvement with the Concentrated Employment Program.

Appendix F: EVALUATION REPORTS

I. Eash and Walberg, Evaluation Report on Development, Dissemination and Evaluation Project

II. Actions Regarding Recommendations of Eash-Walberg Evaluations

III. Memo from Eash to Banathy regarding DD&E Project, Evaluation Consultation, July 11, 1972

IV. Temp, Evaluation Activities During Field Testing 1972-73

I. EVALUATION REPORT ON DEVELOPMENT,

DISSEMINATION AND EVALUATION PROJECT

(FWL Contract #72-025)

Draft - January, 1972

Maurice J. Eash
Director, Office of Evaluation Research
University of Illinois at Chicago Circle

Herbert J. Walberg
Research Professor of Urban Education
University of Illinois at Chicago Circle

Executive Summary

This executive summary highlights and places a recommended priority on selected recommendations from the more lengthy report. For ease of locating the detail which buttresses the recommendation each summary recommendation is followed by the page numbers in the report where the more detailed statement is carried.

1. Since the training package will be heavily dependent on the quality of the instructional materials, instructional materials packages are of the highest priority of any of the specific activities of the project during the pilot operational stage. The instructional and curriculum design of these materials need to be evaluated and shaped in two iterations by the end of 1972. (PP. 13-16, appendix 3)

2. An internal evaluator should be appointed to the project. His main duties would be to organize and conduct the formative evaluation, coordinate the evaluation system activities, and super vise the preparation of the evaluation package for the operational training package. (PP. 12-14, 16-25)

3. In order to implement formative evaluation. transactional evaluation should be undertaken in the pilot operational phase of the program. This transactional evaluation conducted by either the internal evaluator or an external consultant, would involve students, college staff, intern superivors and project staff. (PP. 9-13)

4. Educational Testing Service should be asked to complete the forms and the manual on their recommended use. During the pilot operational phase these forms should be field tested and modified by ETS on the basis of these data. These will constitute a major component of the evaluation package. (PP. 26-27)

The evaluation system needs to improve its efficiency in two ways: (1) to the present project shape in formative evaluation and (2) in the contribution of tools to the final training package. Conceptually these two objectives should be separated in organizing the present evaluation activities by the internal evaluator. (PP. 2-9)

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The following description of services is requested in the contract #FWL 72-025 has served as the organizers of this consultative effort.

1. Review the Consortium evaluation system to determine the degree to which it is meeting its operational goals. This review will include the full range of the Consortium's evaluation activities to include the information and data requirements of the various systems, data and information gathering instruments, storage and retrieval and information flow.

2. Make recommendations to revise and improve the Consortium's evaluation system and instruments. These recommendations will be made to improve the operational effectiveness of the system in providing the information required to determine the degree to which the program is meeting its stated goals.

More specifically this report focuses on the immediate needs of the evaluation system in an effort to make a usable input to the development and operationalization of the training system. The shortcomings of the evaluation system and its failure to contribute to the developmental process of the project are well documented in previous outside evaluations (see Eash, Clark, Seiber, Rabinowitz, and Hopkins).

However, what is largely lacking in these reports are specific plans for implementing an effective evaluation and developmental system in the D, D and E program to assist the first stage operational goals of the training and development system, "Developing and Testing a Model for the Training of D, D and E Personnel." Our concern is the establishment of a viable evaluation system which will: (1) provide effective formative evaluation in the pilot operational stages of the program; (2) render evaluation data that will aid both decision making by personnel at various levels (students, instructor, supervisor, course developer, and project administrator and consortium administrators), and also provide specific correctives to the products of these efforts; (3) eventually emerge as a transportable evaluation system, as readily implemented as the other parts of the operational training program. The bulk of this report is directed to specific suggestions for immediate evaluation design and practice for the year 1972.

Our concern for the immediate is heightened by the continued documentation through our own findings of the insufficiency of evaluative data in guiding the process in producing a functioning training system. As will be explicated in the following sections, we believe the present state prevails because of conceptual misunderstanding of the staging of evaluation in the developmental and pilot operational phase of the process and the resulting incomplete interface of evaluation with the process as a result of its placement with a subcontractor prematurely.

I. Is the Consortium evaluation system meeting its operational goals?

The operational goals of the evaluation systems as distinct from the training and development system are to use process and product evaluation procedures to provide data on both the developmental training program and the operational training program. (See the Evaluation System Section N) In an illuminating paragraph the authors of the original proposal describe the importance of distinguishing between the evaluation procedures for a developmental training program and the more finished training package, the operational training program. It is instructive to re-read this paragraph for we believe it represents a significant distinction in the written proposal that has become lost in the present plans and operation.

> Distinctions must also be made between the developmental training program and the operational training program. During program development it will be necessary to take more different kinds of measures and more frequent measures than will be required in the operational phase, since the developing program will be subject to alteration arising from assessments made during the development process. The operational program may have to be altered as well, but it is assumed that most corrections will have been made by the time the system is operational, and that simpler and less frequent performance measures will, therefore, suffice, to insure functioning to design capabilities and standards. Measures to be retained and the frequency with which they will be administered will be determined in the developmental phase.

Because of the loss of this distinction in the actual evaluation design, the developmental training system during the pilot operational phase has been handicapped with lack of meaningful evaluation data and fails to respond to immediate developmental problems. Moreover, the evaluation design provided by ETS is applicable to the operational training program which does not exist. Confusion among the different role participants appears to exist in their expectancies for evaluation. The evaluation design for the program produces little useful data (useful to the course developers and project managers on current problems). The apparent lack of grasp of the essential importance of providing an evaluation design related to the appropriate staging of the project is impeding current work. In short, the evaluation design provided by ETS is for an operational training program not for a development in a pilot operational phase program from which the operational training program will evolve. This lack of use of differential evaluation data can make during the beginning stages of the program. The conceptual failure has accompanying antecedent problems in the misplaced responsibility for evaluation data and its implementation. Under the present operation the evaluation system cannot meet its present operational goals until recognition is given to the need for differential evaluation and responsibility for its implementation specifically assigned and assumed. The following discussion spells these problems out in more detail.

A. Needed Differential Evaluation in the Present Training and Development System.

The present evaluation design is handicapped conceptually by its failure to provide differential evaluation during the development of the training system. As a result of this missing formulation, considerable confusion abounds both in the design developed by ETS and in the competing and contradictory requirements for evaluation held by different role participants. Using an evaluation design that is largely appropriate for an operational training program, the ETS design fails to provide evaluation data geared to the present stage of development. As the situation now prevails, the evaluation design and participant expectancies place the pilot operational program under strain as it calls for evaluation data and judgments that the project cannot meet, or if it meets, distracts from instead of enhances the development processes. To illustrate the relationship of an appropriate differential evaluation design for the D, D and E project, a brief summary of the program stages in a differential evaluation are specified in Figure 1.* These stages demand different evaluation strategies and designs.

FIGURE I

Characteristics of Program Stage

Differential Evaluation Design

Initiatory Program Model	Development Program Model (Pilot Operational)	Integrated (Operational) Program Model
1. *A priori* model.	1. Field testing under way with subjects.	1. A completed package, fully operational.
2. Described but not tested.	2. Descrepancies between what will and will not work on the *a priori* model are restated.	2. Coherent parts, integrated relationship among parts, clearly defines roles.
3. Incomplete in some parts and descriptions. Relies on logical relationships.	3. More complete, but not a total refinement - unpredictable in some of the results.	3. If properly implemented evaluation data is gathered to correct operational stages as they relate to program.
		4. Predictable.

The D, D and E project has an extensive *a priori* program, but the project is only now moving into a pilot operational training program where the *a priori* model will be translated into an operational program which will emerge with the qualities of a transportable training system. As an a priori program the correspondence with reality is not a one-to-one equivalence and current evaluation theory calling for a direct comparison as the judgmental test between what has emerged against what was written constitutes a test of a Platonic ideal that can only induce stress in participants and warp in the training model. The first obligation of a developmental program is to reality test the constructs of the initiatory, a priori program, and the assessment to be rendered is one of pragmetic practicalism not of a correspondence to an ideal state. As preliminary data indicates, there is need to modify some of the original outlines of the modules and the engineered internship. These difficulties in programming were not forseen in the original a priori model. In the current limited evaluation data in hand this reality testing process now seems slowly underway.

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* A fuller account of these is contained in the paper appended, Eash, Maurice J., "Issues in Evaluation and Accountability in Special Programs For Gifted and Talented Children," June 1971, (Prepared for the USOE).

Moreover, there will be a considerable shifting of the initiatory model as the practical possibilities in the field testing become more clear and validity criteria for the program emerge. Tests of the program as an integrated functioning training system are to be devised only after clearly formulated, stable model components have been developed. In short, during the pilot operational stage, evaluation should be concentrated on formative evaluation, formative in the sense of defining, refining, clarifying and stabilizing the model. Unexpected and unanticipated consequences are uncovered as a by-product during this stage, and provision for coping with them in the integrated model are devised.

In the present evaluation design and its conceptualization, the confusion between what is evaluation for the developmental model and what is appropriate for an integrated model is marked and interferes with evaluation effort. One outside evaluator's criticism of the current evaluation as being only a "curriculum materials evaluation design" belittles the project's need at this juncture in the developmental model stage (See Clark). Indeed materials are critical and the training systems transportability will largely hinge on the self instructional and independent implementation qualities of the finished product. The model cannot be an integrated training system until these modules are developed and the internship planned. Other demands for evaluation of the personnel and integrative systems, are probably premature at this time. Only as the training system begins to shake down and the interfaces of the systems become clarified will the other systems be ready for more the refined evaluation called for in an operational training system.

To illustrate, the modules for training are now undergoing considerable revision with the first group of students and instructors. Given the priorities, the development of materials takes precedent over the evaluation of the personnel system. While some preliminary data on the personnel system can be gathered during this materials development cycle it will also be biased and influenced by the materials evaluation. Provision is made in the development cycle for three iterations of materials. It is possible that a fuller evaluation of the personnel system particularly on students must await the second or third iteration of the materials. More probably the personnel system will be most rigorously evaluated when the operational training program is functioning as an integrated training system. This will probably occur in 1973.

As a first priority then, there is need to focus on formative evaluation for the pilot operational phase of the program at this time. Given the demands in developing the modules and internship, the other systems cannot be properly evaluated using the present group of enrolled students. The present evaluation design does not provide the needed data for the developmental training program to meet its goals of: (1) developing and testing a model for the training of D, D and E personnel; (2) further specifying the goals and objectives of the training programs; (3) designing, developing and validating D, D and E training modules; and (4) aiding training institutions in using the training modules and delivery systems in the formulation of relevant criteria. While there is some provision for the gathering of data which will be useful in the formative process, the vehicles necessary for bringing it into the development and design work are largely absent. In other sections of this report, suggestions are made for evaluation requirements and timing on the systems and for a vehicle to bring formative evaluation data into an interactive interface with the continuing effort on design and development of the training system.

The first concern of the evaluation system must be to address itself to becoming a formative agent in the development cycle. At the present it is not. Moreover, unless this difficulty is attended to immediately, there will be even greater problems as more modules are developed. We believe the initial descriptions of evaluation in the original proposal are comprehensive in their approach to evaluation and offer fruitful suggestions (see Section N) but the implementation of the evaluation strategies remains unresolved.

II. What are the Information and Data Requirements of the Training Development System?

Since the training development system is at a stage of translating an a priori program into a developmental program there is need for specific information on how the original (initiatory) program squares with the constraints and realities of the contexts, personnel, students and materials that constitutes a functional program. In this developmental stage there is a need for the following specific categories of information:

(1) What is the quality and adequacy of the training modules which have been developed?

(2) How do these modules fit into the total program design directed toward the fulfillment of the objectives of the D, D, and E Program?

(3) What are the problems in the internship, both in locating quality experiences, programming students, and relating supervisory and teaching personnel to the internship?

Within the categories, a number of more specific questions are being spawned, but the evaluation system as presently constructed does not aid very much in promoting data gathering or in organization of data into a useable form. Furthermore the attempt to evaluate the pilot operational training program as a operational (integrated) program is creating confusion among the several role participants. Recognition of the differences in these two stages of program development, through use of differential evaluation, should help clear up the present confusion. But equally important is the need to use evaluation strategies which will bring evaluation data and the development process into a mutually supportive relationship.

In the present stage of the training system a considerable range of formative evaluation data is being gathered. The ETS design lists seven instruments that furnish data some of which can be cycled as feedback to program developers, instructors and participants. While there seems to be sufficient data for feedback and the preliminary interview data from students and instructors identified problems both in the materials and in the classroom instruction, in the present evaluation design there is no adequate vehicle for bringing these data to bear as effective feedback. This, we believe, can be corrected by instituting a process for gathering and using data that does not separate the responsibility for acting on the data from the process of gathering data and making recommendations for action. Using a procedure called transactional evaluation, the hiatus between gathering data, and acting on the implications of findings can be bridged. If transactional evaluation is implemented, the role of the evaluator is broadened considerably from the one in present use and the process of design-developer and evaluator become much more closely allied. This is explicated further in the description of how transactional evaluation would function in the improvement of the modules, instruction and internship.

A. Transactional Evaluation Design

The purpose of transactional evaluation is to provide a vehicle and an environment for gathering and organizing evaluation data that provides for implementation and action on the findings. In some respects it parallels organizational development work, which is needed if the D, D, & E program is to function in a consortium. The following is a scenario of how transactional evaluation can meet the present project's current evaluation demands.

The evaluator would meet with the students and staff responsible for the course modules at the two colleges. Since the programs represent different populations, the meetings should be held separately. (Also the meetings for the internships and supervisors might be held separate from the course instructors, though in some cases these may be the same individuals.)

The purpose of this meeting is to generate data that clarify the participants' goals, the modules' goals, and strategies for the attainment of both. Following an introduction to the purpose of the meeting, the evaluator should ask the participants to respond in writing, with answers limited to a sentence or two, to the general questions:

1) What are the problems in this course that are keeping it from being as effective as I think it should be?"
2) What are the major problems in the classroom activities that are keeping them from being effective?"

3) "What are the major problems in the materials that we have been using?"

4) "Given that this program is different from most college programs, what does this change mean to me as an individual?"

(Due to previous information gained from the interviews that Sam Levine is processing, another question or two may be more suitable than those above.) The different participants should code their papers S for student, C for college teacher, SI for supervisor of interns, etc. Once these comments are made the interviewers will need sufficient staff to prepare on the spot a questionnaire which uses the comments as statements with a strongly agree, agree, disgree, strongly disagree reponse format. Example: The materials in the modules we have had so far are far too easy: Strongly agree, agree, disagree, strongly disagree. In the preparation, the evaluator should attempt to use at a minimum one comment from each of the respondents, leaving it, if possible, in the original text to the extent that it can be identified by its author. These responses are collected by the evaluator and an instrument is built. We have found that dividing an evaluation meeting with a long lunch hour usually gives the evaluator sufficient time to prepare the instrument given enough secretarial assistance to type on ditto a lengthy questionnaire, run off, and collate it. The evaluator should make clear to the participants that he will be including a few of his own items. From the data on the program's functioning, we would suggest the following items be included.

- I feel that I'm not fully qualified to accept the role required of me in this new program.
- Participants in this program don't feel that they will obtain a job after their graduation.
- I don't know what I will be able to do if this whole program starts turning sour.

These items are intended to defuse inter-institutional conflict, and to allow sentiments to surface that data now testifies exist.

In the second session (P.M.) the participants are asked to respond to the statements and a compiling of responses is done immediately within the group. From these responses the evaluator proceeds to lead a discussion of:

(1) those where there is largely agreement and elicits reasons for these responses,

(2) those responses where there is considerable variation and records the reasons for the difference in responses.

Using these data, small group task forces are formed to develop suggestions for revision of course or role performance, and a report is rendered to the group and discussed. In these reports suggested solutions, next steps in a plan of action should be included. In some cases it is helpful to have those who are responsible for the program to respond on constraints and problems of implementation. It is advisable to keep the task forces to six or less in order to encourage focusing on several specific, but not overlapping problems. In some settings, it is also advisable to assign the same problem to two groups to work out suggested solutions. It is essential to record questions, plans of action, and solution for future use in development and evaluation. If future transactional evaluation sessions are held, these data can be used to chart progress and provide check points. They are also check points for the evaluator and administrators of the project. We anticipate that there may be a question on why Sam Levine's interview data could not be used to build a questionnaire serving the same purposes. These data lack the essential factor of gaining commitment from individuals through using the group setting to build the instrument. Using transactional evaluation as a vehicle in formative evaluation has the advantage of lodging responsibility for acting on the evaluative data with those who are active participants - hence data does shape and form the project's activities as the definition of formative evaluation implies.

One question for the D, D, & E project staff is who shall act as evaluator? Should it be an outside agent (ETS, Sam Levine, or some other person) or can the internal evaluator role be handled by Joe Ward, and Freeman Elzey or an internal evaluator to be appointed? It may pose problems if the D, D, & E staff who have been closely associated with the materials development, or with supervision of the internships and are not seen as objective observers of the program assume the evaluator's role. We do not have enough data on the prevailing roles and relationships to make a more specific recommendation at this time. However, we are persuaded that the evaluation design is weak on implementation of formative data and provision for use of vehicles such as transactional evaluation necessary. At this time we are of a mind that the responsibility for evaluation in the developmental model stage can not be lodged in an outside agency and a static design if effective formative feedback is to be obtained. The evaluation must be much more closely allied with the pilot operational work. Moreover, the evaluation must receive more consistent attention and be performed in concert with the development work. The project staff does not seem able to give it this attention, nor does the outside evaluator have the capability. Though Sam Levine's work is moving toward getting formative data which can be used as feedback, this appears to be more by accident than design, and there is no provision for him to function as a transactional evaluator. We therefore recommend that provision be made for an internal evaluator within the project, especially during the pilot operational stage.

Similar use of transactional evaluation can be made in the other program activities of counselling and internships following the general procedures outlined above. Since the production, refinement, specification, and use of materials is the most stressingproblem, the illustration was drawn on this area.

B. Formative Evaluation of Modules

Formative evaluation of the modules is an area of most immediate, obvious, and pressing concern, and three tasks should be accomplished according to schedule: a) a thorough review and critique of the substantive content of each module by an inhouse expert or outside expert in the area of the module; b) a detailed analysis of the instructional methodology within each module with careful attention to the match of stated goals and learning experiences provided, the continuity, sequence, and integration of the principles covered, the authenticity of the examples, etc.; and c) a careful examination of the sequence and interfacing of content and method across the several modules. Each of these tasks is discussed in subsequent sections.

a. Because many aspects of D, D, & E are controversial, a review of substantive content is necessary. This is not to say that Borg's "The Three Tests in the Minicourse Development Cycle", "The Task Concept Outline", and the more recent "View of Stages of Product Life" and "Evaluation Stages for Major Laboratory Products" would not be useful guides to further development and formative evaluation of the modules. However, these proposals for evaluation assume that there is a unified, agreed-upon set of specifications on what constitutes valid content, for example, "The Specification of Expected Outcomes" and "The Consideration of Alternatives." We suggest that at least two experts who have not previously worked on the Project be commissioned to critically review the content of each module. It would be preferable to contract with two people of fairly different theoretical persuasions, for example, James Popham of UCLA and Elliot Eisner of Stanford on objectives.

b. Another task to be accomplished in the formative evaluation of the modules is an analysis of the instructional methodology. We are providing a self-explanatory form for this purpose in Appendix B.

c. On several occasions during our interviews with staff members, they noted problems of continuity from one module to the next. It would seem worthwhile at this point to consider the balance of the self-contained quality of the modules against the elements of (1) content, (2) method, and (3) examples that would tend to lock the modules together. A curriculum matrix of the common elements in each module should be constructed.

It is not altogether clear which agency or person should perform each of the three tasks. Outsiders, of course, might have more objectivity in criticizing the modules; but FWL staff who have not worked on the D, D, and E Project might do almost as well in this respect. (L. Jenks) Perhaps a mix of insiders and outsiders within the scope of the projected budget might be best. The data which will be generated in the transactional evaluation sessions can also be brought to bear on the materials revision.

Given the dependence of the program on these modules the development revision, and field testing of them should be given highest priority. Again responsibility needs to be formally and specifically lodged with an internal evaluator who will further specify and map out these evaluation strategies and prepare a schedule for their completion. The development of these modules to a state that they can be moved into an operational training package should be completed by the end of 1972.

C. Evaluation Information and Trainees in the Developmental Training System

The trainees in the program at both S.F. and Canada College are in a program that is still undergoing development. Due to the present stage of development a test of the materials effectiveness as finished products cannot be made. By the same token it is difficult to see how the materials would be developed without a student body and an instructional setting for field testing. The present on-going program has been further criticized on the grounds that the S.F. student body is atypical in being more experienced and better educated than one might expect to recruit in the program. Though the latter criticism may or may not be accurate, the present student body still can be used to develop the materials and ready the operational training system. If this route is taken and we strongly recommend that it be followed, then the chief evaluation requirements are for formative evaluation and the student products cannot be subjected to a summative evaluation assessment suitable for an operational training system. Granted, certain end product evaluation data will be gathered, where graduates were employed, employer evaluations, etc., but the present subjects trained under the pilot operational phase of the training program will not be representative of what the operational training system will produce.

D. Evaluation Data and Faculty in the Developmental Training System

The training development system is also using the present faculty to iron out problems in the use of materials and will hopefully build their knowledge of pitfalls and how to surmount them into the operational training system. In the same sense as the students evaluation data particularly on learning product developments serves immediate formative evaluation purposes so, too, the faculty's evaluation data is similarly restricted and is not an assessment of the operational training system. The evaluation mechanisms in points A and B above will gather these data during the coming year. The forms developed in the ETS design will be useful during the operational training program, though they should subjected to formative evaluation and revised during 1972.

The pilot operational training program will condition the faculty, and to test the operational training program a different faculty should be considered for 1973-74.

E. Summary

The information and requirements for the training development system (1972) are for formative evaluation that will shape the modules and engineered internships into an operational training program. We recommend specific steps in materials evaluation to refine the instructional design and content of the modules and the use of transactional evaluation to structure and implement the evaluation data. To accomplish these there is a need for an internal evaluation design.

III. How Are The Evaluation Requirements in the Subsystems of the Training Program Being Met?

An analysis was made of the evaluation requirements of the systems of the training program with a view to readying them for use in the transportable training package. Because the "Training and Development System" is part of the present development phase and is evaluated through the assessment of the subsystems, it is not included in this analysis. In the following tables, each of the separate subsystems objectives were shorthanded from the descriptions in Section N and an analysis was made of (1) the adequacy of the data needed, (2) provision for instruments or records needed and where called for, (3) a strategy for the use of the data, instruments, and records in the training systems, and (4) the adequacy of the evaluation for this objective at this time. When examining the objectives, it is advisable to look at the full statements of objectives in Section N of the original project description. There is considerable redundancy in the four subsystems. We believe careful attention to the objectives of the Personnel subsystem and Training Implementation Subsystem in the Evaluation System will cover the significant training features. Thus, we have done a detailed analysis and made recommendations on these two.

EVALUATION REQUIREMENTS

IN SUBSYSTEMS IN TRAINING PROGRAM

Table I

PERSONNEL SYSTEM (OBJECTIVES)

	Data Defined	Instrument (Record)	Strategy	Adequacy
1. Recruitment	X	X	X	YES
2. Placement in Program	X	X	X	?
3. Programming of Students	X	X	X	?
4. Exit Interviews			X	NO
5. Maintenance of Attendance and Performance Records	X	X	X	?
6. Personal Counseling and Guidance	X	NO	?	?

Recruitment. The information provided in the three instruments: Application Form, Pre-Admission Interview Schedule, Post-Interview Rating Form along with the early interviews on students' reactions to the program will render adequate data on recruitment. Taking this information and doing a routine analysis will satisfy most of the questions on the individuals who are encourage to apply for the program, those who are accepted, and whether the program is meeting its goals of upgrading individuals vocationally.

Placement in Program. Placement in program has met most of the four requirements with one exception in the area of definition of data. The program placement strategy does not provide for using diagnostic tests for deciding which modules that students will enter. The program placement is based on a conference report and program plan. And while the program decision strategy calls for cooperation between the instructor and counselor in defining the data for this form, in cases where this collaborative arrangement is not followed, the flexibility of a functional competence program can be lost. Furthermore, the record does not allow for recording exempting out of modules, or satisfying a requirement in other ways. It is also probably a mistake to assume that this record will be a completely accurate program plan, and instructions for revision and updating should be included in the evaluation plan. On this subsystem objective, it is recommended that placement in the program procedures and records be modified to allow for adjustment of students' programs on the basis of diagnostic test information which should shape students entry into and progress through the modules. Instructions in updating of the record should be provided, i.e. every six weeks, three months etc.

Programming of Students. This objective uses the Composite Student Record which includes Application For, Pre-admission Interview Schedule, Summary of Pre-instructional test scores, Synopsis Report of Conference, Program Plan, Notice of Completion (of modules, learning experiences) as its main sources of data. Other materials from the Composite Course Record and the Composite Internship Record would be inputs in the student programming. It is further recognized that over a period of time follow-up data from employers would influence the student programming through a shifting of the curriculum to overcome identified weaknesses. Follow-up data should be collected in a systematic, organized form.

What seems to be most needed is a form to keep track of student progress and it indicates the students route through the program. It is recommended that a form be created for inclusion in the evaluation package that will list candidates names on the ordinate and the modules and internship experiences or the abscissa. These blocks can be color coded to indicate the adequacy of progress and the rapidity of progress for individual candidates. Since the progress of candidates is determined by performance rather than time, these data should tell at a glance which modules need refinement or redefinition. In a similar manner they will inform the personnel staff of candidates who need more branching in their programs. Since there will be a quantity of information in the Student Composite Record, a form for simplifying and drawing the personnel staff's attention to students having difficulty in the program is needed.

While some of these data on student programming could be stored on a computer, the scope of the program in the foreseeable future does not merit this expense. At this time, we see no advantage to including extensive and expensive computerized operations in the data processing in this program. The above type of summary form will serve the purpose and be more transportable.

Exit Interview. There is need to define the parameters of the exit interview in order to gather data on any attrition in the program. The estimates of the parameters of this interview needs to be tested during the developmental phase of the project (est. 1972-73). It is recommended that ETS draw up a student Exit Questionnaire and Interview Schedule. Sam Levine's preliminary interview data should be useful in designating the first rough dimensions of this form.

Maintenance of Attendance and Record Forms. This objective suffers some of the same problems that were covered under the Programming of Students. On the whole the ETS formulation and categorization of the record forms and instruments needed are adequate. The grouping of these data into a system of records with three functional referents, Student Composite Record, Composite Course Record, and Composite Internship Record appears to be adequate as organizers for a wide variety of data.

What is most lacking is forms for summarizing these data and placing them into a graphic display that will encourage the Personnel System staff to bring them into the formative evaluation that is to be a part of the D, D and E program. The outline of a sample type form is suggested in the Program Planning Section above. It is recommended that ETS produce similar summary data presentation forms for the other two areas. These forms should be used and tested during the development phase of the project this year. In this way, the usefulness of these forms can be evaluated and the strategy for their use be improved. As indicated in Table I this is largely missing in the present evaluation scheme.

Personal Counseling and Guidance. The data is defined and if gathered is largely adequate for personal counseling and guidance. The records for maintaining information on types of guidance sought or personal counseling initiated by students and the instructors or the personnel staff are not listed. While the summary data presentation sheets will provide a running record on the educational guidance, there is need to select a form to maintain records of contacts between the personnel staff and students as well as summary of progress and attendance. A number of form records are available (and they already may be in use), but it is recommended that a standard form be selected tested and included in the evaluation package as a part of the final product.

Selection of this form and the development of forms should be guided by concern for future transfer of these data to IBM cards. Experienced programmers can give suggestions on setting up the forms for this purpose.

It is further recommended that the way in which these data may be used to assist in formative evaluation of the project be included in the manual in the evaluation package. There evaluation suggestions should be collected by the internal evaluator during the pilot operational stage of the one program.

In Table I adequacy of the measures column is questionable largely due to the stage of operation. As the project proceeds and instruments and strategies developed, these question marks should be removed, preferably during this pilot operational year.

Table II

Training Implementation System (Objectives)

	Data Defined	Instrument (Record)	Strategy	Adequacy
1. Staff and Administrative Preparation--Internship	X	X	?	NO
2. Administrative Arrangements to Oversee the Program	X	X	?	?
3. Cooperating with Laboratories and Development Agencies for Training and Permanent Positions	X	?	?	NO
4. Articulating Formal and Applied Segments of the Program	X	X	?	?
5. Providing for Regular Evaluation	X	?	?	?
6. Altering the Program as Indicated by Evaluation	X	X	?	?

The training implementation system will be largely formulated in the pilot operational year, particularly in the shaping of strategy for administrators to implement the objectives. Thus, the last two columns of Table II are mostly question marks. One major focus for the internal evaluator will be to gather data on how strategies are evolving on use of data to implement the objectives of this system. Some specific suggestions for each of the objectives follows.

Staff and Administrative Preparation--Internship. The applied aspects of the program contained in the internship will require the overall administration of the program to use implementation strategies which will provide training for those supervising the internships. The initial data collected on the backgrounds of the supervisors of the internships should give an indication of the amount of training needed. Additional information which will be specific on training will be provided through the assessment interviews periodically conducted, the Intern's Description of Internship, Internship Rating of Internship, Supervisors Rating of Interns, and the personal counseling data. A strategy for the use of these data is suggested in the section of Transactional Evaluation, see Page 9. It is recommended that strategies should be tested and procedures for their use described in the operational training package during 1972.

Administrative Arrangments to Oversee the Program. The efficacy of the administrative arrangements has been difficult to assess. In the progress of the project thus far the administrative arrangements have been taxed by the start up phase of the project, which is not a valid test of the administrative arrangements for the operational training package. One factor is becoming clear, however, and that is the need for coordination between the three main units of supervising agency, formal teaching, and internships.

So far the input back into the system from evaluation data has not been sufficient. Moreover, pressing administrative details on development have minimized the role of evaluation. One of the most important questions on this objective is whether the administrator can also function as an internal evaluator who handles the formative evaluation of the project. Some data may be gathered on this question in the present year. The answer on number of administrators needed and how they devise strategies to meet the demands of the systems managers for accurate evaluation that can be incorporated quickly into the program may need to be explored in depth when the operational unit is completed. We do recommend that a systematic interview shcedule, once every six months, be used with the present instructors and participants, along the line of Sam Levine's interviews. The data bearing on this objective should be extracted and studied for its implications for administrative arrangements. Answers to such questions a-, can the course module instructors function as supervisors of interns, or must supervisors of interns be in the coordinating agency, are of primacy in completing the operational package.

Cooperating With Laboratories and Development Agencies for Training and Permanent Positions. This objective was explored in a preliminary fashion in the original proposal. There are some indications that there is a need to further refine these data. How the purchasers of the training package would conduct a survey, what specific agencies would be included and the alternative routes that an internship might take are cloudy at this time. The training package should have specific suggestions to make to the user. Also the internal evaluator will need to follow closely the internship experience to document the pitfalls that a central coordinating agency should avoid. For example, we found there existed considerable confusion on the part of intern supervisors on what they should do with interns. From their remarks frustration was building with the program, a condition which will be reflected in the relationship between the supervisor and intern. Another area where the Training Implementation System needs broadening is in the extension of the job opportunities to other agencies. If this is not done, we believe that graduates of the program will have difficulty in securing positions that utilize their training. Certain research evidence would point toward more effective placement if internships were done in the same place as permanent employment is sought. We recommend that more evaluative data be gathered and analyzed on the internship using the present forms with an eye to including specific details on its implementation in the operational training package. Also we recommend that the present objective be re-examined on the basis of its original assumption and a wider range of agencies be investigated for intern placement. Further we recommend that the use of transactional evaluation as a strategy with intern supervisors at agencies to improve the formative evaluation of the program, and strengthen the coordinating function of the Training Implementation System.

Articulating Formal and Applied Segments of the Program. The data which are gathered by the suggested forms developed by ETS seems to be on target. While the three major areas of data will provide sufficient information, the use of these data in a formative evaluation strategy is still to be resolved. The supervising agency (FWL in this case) needs to explore strategies for articulating segments of the program. We have recommended one through use of transactional evaluation. Other strategies could be tested. The main outcome is to put these into an operational training package which direct the purchaser in articulation of the program and assist him in avoiding some of the pitfalls that overwhelm programs undertaken by consortiums. Much of the data will be gathered through the present forms, the strategies for their effective use are in need of being developed and tested. We found little evidence of this problem being handled either by the administrative staff at FWL or by ETS. We recommend that an internal evaluator be used to test strategies and evaluate the adequacy of the data being generated. The evaluation of the articulation of the program should entail an analysis of the curriculum materials as well as student and faculty behavioral data.

Providing for Regular Evaluation of All Segments. The present evaluation plan is deficient in being an integrated whole which can be installed and operationalized by a user of the operational D, D and E training package. The packet of evaluation forms developed by ETS are a start on a ready made evaluation package. We recommend that these be completed, tested, refined and put into an evaluation design that suggests what the purchaser do on implementing evaluation when he uses the training system. The evaluation of the pilot operational phase of the package and the evaluation for the operational training package, as we have stated in other places, are two different problems. There may be a need to simplify the evaluation and use a few indices, if the training package is to be adopted to a variety of contexts. The essential evaluative data should be identified during the pilot operational phase, 72-73. Equally as important is the outlining of strategies, which should be tested and refined to be included in the package. We have made numerous suggestions on both these points throughout the document.

Altering the Program as Indicated by Evaluation. The use of formative evaluation strategies and their relationship to the data gathered by the proposed instruments will be a significant part of the finished Training Implementation System. We have made recommendations in the other objectives of this section which pertain to this objective. Again the separation of the present work in formative evaluation for the pilot operational stage from the evaluation requirements of the completed training package will clear up much of the present confusion on what an evaluator should be doing. Evaluation data at present are not guiding and shaping the program the way it can and should. Our recommendation on how this situation might be corrected is spelled out in Section II of this document.

IV. Some Specific Recommendations on the ETS Evaluation Design and Instrumentation

1. The basic assumptions underlying the model for evaluation proposed by ETS are conventional and generally accepted by evaluators. Where the model may encounter difficulty is in its use with the pilot operational phase of the project. As it exists it speaks more to gathering information and stimulating decisions on an operationalized fully integrated D, D, and E program.

At this point in the evaluation there is a need to field test the forms that have been developed to determine: (1) if they gather information in a systematic reliable way, (2) if they gather data in a form that it can be readily utilized (formatively) by the participants, (3) and if the data gathered will assist in summative evaluation of the project.

It is recommended that ETS continue to refine the Evaluation Design and to field systematically test the instruments during the developmental phase. From these efforts a package of field test instruments and a written manual for their use should be included in the operational package.

2. Student Progress Information, pp. 4-5, is based on a comparison of actual progress with postulated progress in the previously prepared program plan. Again this evaluation should be more related to the pilot operational phase of the work in 1972. It is highly unlikely that the personnel staff and student can predict with any degree of accuracy the pace of learning or pitfalls in an untested program. However, the data on student experience with modules will be useful in providing a basis for estimated completion time, recycling and branching needs. It is recommended that during this first year, careful records be made of student and instructor reactions to the course materials. This requires consistent monitoring and a feedback mechanism for this information. There is at present structural limitations in carrying out this evaluation role which needs to be corrected, probably through the appointment of an internal evaluator.

3. P. 6. How will data on actual performance in the classroom and internship be gathered? Who will assume responsibility for it? Will the instruments simply be administered by the personnel staff? Will an outside evaluator or ETS use these instruments on a test basis?

4. P. 9. The direct ratings of the course will produce data on gross perceptions on the course by both students and teachers. There is a need to obtain more specific monitoring information on how the modules are being used. These data can be gained through careful interviewing or visitation of classes and internship sites. Who will do these? Will this be part of the data gathered in the interviews? Will ETS perform this role? How will this role be described in package?

5. P. 11. Can the overall systems evaluation wait until groups of students are turned out and employed? Would it not be possible to do some simulations with an evaluation team extraneous to the project to obtain a reading on students proficiency?

Would it not also be important, despite the students' experiences, to follow-up more than one year? Could not data on the context of graduates' experience be included? Also the mapping of the career paths for D, D, and E products would be an important part of follow-up.

6. P. 14. In the formative evaluation of the present program, a comparison of the model should be made with other programs of a similar nature, e.g. University of Virginia, masters and doctoral programs purporting to prepare candidates with similar skills.

The appendices referred to in the above report are not included with this report.

II. ACTIONS REGARDING RECOMMENDATIONS OF EASH-WALBERG EVALUATIONS

In revising and improving the evaluation system, we have taken into consideration the recommendations on pages 27-29 of the Eash Evaluation Report. There were six specific recommendations contained in this report. Our actions in regard to each are outlined below.

1. The ETS evaluation system is being refined and the instruments tested through field use. Consortium personnel have substantially revised these instruments to meet evaluation requirements included in the original Design Report. Dr. George Temp (formerly of ETS) who was involved in the initial evaluation system design, has been retained on a consulting basis to assist in this activity.

2. We are now maintaining records of student and instructor reactions to the course materials. A monitoring and feedback system for accomplishing this is being tested. Mr. Freeman Elzey, a member of the Consortium staff, has been assigned the position of internal evaluator with primary responsibility for developing and implementing evaluation procedures. His immediate concern is obtaining information related to the pilot operational phase this year.

3. Data on classroom performance is the responsibility of the instructional manager. All instruments pertaining to student performance will be administered and evaluated by each instructional manager prior to submission to Consortium management. Data on intern performance is the responsibility of the supervisor and the advisor. The supervisor evaluates intern performance on a task by task basis. The advisor evaluates intern performance by reviewing materials and work that have been produced and stored in the intern's record file.

4. Direct ratings of the courses will be derived through interviews conducted by the internal evaluation staff (see #1 above) and through visiting classes and internship sites. Exploratory discussions are being conducted with Dr. Daniel Stufflebeam, Ohio Evaluation Center, for consulting services and placement of a Center intern suitable for the Far West Consortium. Discussions have also been initiated with Dr. Michael Scriven, UCB, for consulting services.

5. We are attempting to implement evaluation procedures as various parts of the system become operational. Follow-up information, providing feedback on effectiveness of Consortium materials and program will be continued as long as the Consortium is funded and the gathering of information cost effective.

6. We do not anticipate comparing the Consortium program with the other models of a similar nature. The Consortium will review the operations and materials of these models that might meet Consortium needs. However, the Consortium model must stand or fall on the effectiveness of its own program in meeting development agencies' on-the-job requirements. Procedures to provide this information have been established through the engineered internship and graduate placement.

Date 3/1/72

FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

III. *INTER-OFFICE MEMORANDUM*

Date July 11, 1972

To: Dr. Bela H. Banathy cc: Wayne Rosenoff, Joe Ward
Paul Hood, Freeman Elzey, John Hourigan,

From: Dr. Maurice J. Eash, Director, Office of Evaluation Research,
University of Illinois at Chicago Circle

Subject: D, D&E Project, Evaluation Consultation -- July 11, 1972

On July 11 I reviewed the progress of the evaluation design for the D,D&E project with Mr. Freeman Elzey, the internal evaluator. This review was a follow-up of the evaluation consultation completed in March 1972 where a number of recommendations were made for strengthening the development of an evaluation system. In this review the evaluation design and instruments were examined and a number of verbal suggestions made.

The four major recommendations which were the core of the March report have been acted upon, and the internal evaluator has made excellent progress in meeting the deficiencies of the evaluation system. At this time, the conceptual framework for guiding the final development of the instrumentation is rapidly emerging, and the preliminary instruments for the training package are in a rough draft stage. When the conceptual framework is completed in the next few weeks, the instruments can be further refined and will be ready for additional field testing.

Plans are well underway for the development of manuals to accompany the instruments in the training package, and the procedures for processing and analyzing the data for formative evaluation purposes are being refined.

It is my professional judgement that an evaluation design is emerging that will: (1) provide formative evaluation data on the development of the training package modules and their implementation, and (2) produce a series of usable evaluation instruments and procedures to accompany the training package. The future evaluation needs of the project appear to be well in hand and the PERT chart for meeting these needs is reasonable in its demands and deadlines. The reorganization of functions into four areas has strengthened the project's evaluation component, and the internal evaluation is building an effective and efficient evaluation system.

George E. Temp - Research Psychologist

[illegible]
Lafayette [illegible]
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IV. EVALUATION ACTIVITIES DURING FIELD TESTING
1972-73

A Report For The

TRAINING PROGRAM FOR DEVELOPMENT, DISSEMINATION, AND EVALUATION PERSONNEL

April 1972

RATIONALE

The necessity to evaluate 60 modules -- 30 at each professional level being trained -- in the five courses being field tested in 1972-73 demands the efforts of the evaluator be sharply focussed. In essence, each of the modules is a mini-course. With a minimum of two working days devoted to each module -- a day of preparation and data collection during an evaluation session and a day of memorandum writing per module -- the evaluator has utilized 70% of the available time during the academic year. Three visits to interview interns and write the reports necessary will utilize the remaining 30 % of the time available.

Preparation for evaluation prior to September 1972 and follow-up activities during June 1973 utilizes the remaining time of the evaluator for the field test year. Preparation prior to September 1972 includes reading and studying the modules sufficiently to be able to frame some questions related directly to each and to be able to intelligently discuss the content with students, writing individualized evaluation "inserts" to accompany modules as they are being sent to instructors for use, and arranging for cooperation during the academic year with both instructors and internship agencies.

RECOMMENDATIONS

It is recommended that the internal evaluator concentrate his evaluation efforts during 1972-73 on the following essential activities:

(1) the arranging, scheduling, and conducting of evaluation discussions with students, instructors, and authors in sessions aimed at obtaining negative feedback on each module used during 1972-73;

(2) the arranging, scheduling, and conducting of evaluative interviews with all interns and their supervisorson-site in their training agencies at periodic intervals throughout the year but with more contacts during the early months of the experience;

(3) the preparation of evaluative memorandums to the developers of each module listing the major findings and comments the evaluator feels are most significant for preparation of a revised module; and

(4) the preparation of three evaluation reports on the internship situation -- site by site -- approximately by Thanksgiving on initial conditions and problems, by February 15, 1973 on interim conditions, and by June 1 on the total internship situation and recommendations for changes by administration for 1973-74 interns.

PROCEDURES

As soon as possible after completion of efforts to "mock-up" evaluation data for 1971-72 prototype course modules and get this to the developers, the internal evaluator should turn to the preparations for 1972-73. In any case, it will be wise to have a deadline for this year of June 30, 1972 and to focus attention after that time on next year's requirements which are extensive.

Starting with the available units and adding the remainder as they become available during the summer, the evaluator will review each sufficiently to develop an "insert" memorandum to the students that will be using the module. This insert will be individualized enough for the unit so that certain aspects or kinds of information eventually to be discussed during the evaluation session will be made clear to the students. That is, they are to be alerted to the fact that an evaluation session is going to be scheduled for the module they are learning from and to the kinds of information that they should be making notes about or thinking about while working through the module. This is not as detailed as a questionnaire on the module but will require thought and careful development by the evaluator. When it is ready, it can be circulated for comments or additions to the developer (perhaps) and then printed up and inserted in the modules ready for delivery to the instructional managers.

Development of a master schedule and calendar of evaluation activities -- based on a realistic school year calendar -- may begin during the summer although it will be changed and completed as the academic year progresses.

Because the cooperation of instructors and internship agencies is essential to the evaluation activities planned, some summer time should be devoted to getting to know the individuals involved and in discussing the evaluation arrangements envisioned. To the extent that the internal evaluator already is acquainted with the instructors or internship supervisors the task will be reduced. However, for those individuals that he is not acquainted with it will be important to schedule one and half to two hours of time to discuss the purposes and procedures of the evaluation activities to take place during the academic year. If most of this ground work can be accomplished during the summer, the actual academic year should move much more smoothly and with greater cooperation. Prior knowledge of the evaluation activities and time to adjust to the idea that such activities will occur reduces a great deal the natural and human anxiety of those asked to cooperate. (Rapport with the students asked to evaluate the materials is essential also obviously.)

If the evaluator is planning to utilize an assistant for a portion of the evaluation sessions with instructors or when interviewing the interns, this person should be included in the summer activities laying the ground work for data collection during the year.

As the Fall Semester begins and the first modules are being delivered for use, the evaluator will need to confirm times, places, and dates for the evaluation sessions by contacting the instructors. If the dveloper is going to be present for the evaluation session, coordination with his schedule will require further communications. In any case a person or a mechanical device (like a casette tape recorder) should be utilized to record comments during the sessions. This must be planned for and arranged also.

(A Generalized Formulative Evaluation for Modules is described elsewhere and may be useful to indicate how these evaluation sessionsmay proceed.)

Following the information collection in the evaluation sessions, some of the most difficult and important work of the evaluator takes place. The evaluator must prepare a brief, but detailed, memorandum and accompanying documents to attempt to help the author of the module to consider specific places or ways to revise the module studied. This memorandum is the heart of the evaluation process because here the ideas and suggestions mentioned at various places and times or emerging from the flow of information generated by the evaluators questions will be summarized and recommendations presented.

The accompanying documents may be students' and instructor's copies of the module with notations and questions written in the margins -- or summaries of the comments recorded by the tape or by an assistant acting as recorder -- or written comments from the instructor. In all cases the evaluator must take the responsibility to attempt to summarize what the information means to the developer -- even if the developer was present in the evaluation session. In this way the evaluation function is fully operative. Without this attempt the evaluator merely becomes a channel through which information flows but is left untouched and no evaluation has taken place.

Also starting in the Fall Semester are the interviews with interns and supervisors on-site to evaluate the situation for each individual trainee. During each interview session there will be time for separate discussions with the intern and the supervisor as well as a group meeting. The individual sessions can precede or follow the group discussion according to the desires of the participants in each site. The purpose will be to collect both descriptive information about the experiences actually being provided as well as reactive or affective response to the internship situation.

Since each situation is intended to be independent, it does not seem possible to merely sample what is happening to interns as a group and arrive at any helpful comments. The intention of the evaluation is to find what experiences in what kinds of situations are helpful, what kind of students achieve the goals of the the D, D & E training system. Because this is so, the evaluator will need to summarize the information collected site by site in order to make recommendations to administration about changes in the internship program as established. It also requires that sufficient time be devoted to each site to allow a full and detailed discussion to develop about what has been happening to the intern. It is possible in some situations that the intern, the supervisor and the evaluator will go over certain paper work that the intern has been involved in on a page by page basis in order for the evaluator to understand what was happening and to judge for himself the value of the experience given the goals of the training system.

The reports prepared by the evaluator at three times during the year on the internship situation should be directed at the administrator of the internship program internally within the Far West Laboratory, attempt to reach generalization but present recommendations in terms of specific situations, and, of course, avoid the use of locational or nominal identifications in all permanent printed communications. The evaluator _qua evaluator_ is not interested in the defects of Mr. Jones and Mrs. Smith but only in the essence of the internship experiences as they are developing within the training system. This is a difficult but essential distinction that must be maintained if the evaluator is to secure and maintain cooperation during the course of the year.

General

The two major assets of any evaluator are the ability to form probing questions that uncover information of potential value in forming judgments about important aspects of any situation and the ability to judge -- that is, to take a position based upon the information collected. The intention of the recommendations made in this report have been to clarify the opportunities that the evaluator has in the Training Program Field Test Year to perfect and improve the system by the timely and continuous collection of information. Within the limitations of time and personnel and -- judgment --, the evaluation activities outlined here should benefit the Training Program substantially during 1972-73.

Appendix G: LEVELS OF COMPETENCE

For each competence element, a trainee can be certified as being proficient at one or four levels, depending on the degree of training he/she has had and on the amount of opportunity he/she has had for applying it in the Engineered Internship. Below are presented the levels of competence and a definition of each level.

LEVEL	DEFINITION
ORIENTATION	The task has been described or demonstrated; intern understands its purpose or function, but cannot perform it.
FAMILIARIZATION	Intern has been given practice in performance, but can perform only with close supervision or detailed instruction.
LOW PROFICIENCY	Intern has been given repeated practice. Performs slowly with few gross errors, if given some supervision or adequate job aids.
HIGH PROFICIENCY	Intern performs efficiently and with no errors. Minimal supervision required.

Appendix H: PARADE FORMS

NCERD Reporting Form — Developmental Products

1. Name of Product Functional Competence Training Model for Development, Dissemination, and Evaluation Personnel. Series 1: Planning and Design	**2. Laboratory or Center** Far West Laboratory for Educational Research and Development (FWLERD)	**3. Report Preparation** *Date prepared* Jan 10, 1973 *Reviewed by* Laboratory Director

4. Problem: *Description of the educational problem this product designed to solve.*

There is a major demand for personnel who are qualified to perform at various professio levels in the field of educational research development, dissemination, evaluation and implementation. Surveys of current training programs for developers indicate that the output is miniscule in relation to the demand.

In the area of planning and design, the need is particularly critical. Through literature survey and analysis, time sampling, and task inventories, it was determined that planning and design are activities in the D,D&E process which can be performed by persons with appropriate training at the entry professional levels.

5. Strategy: *The general strategy selected for the solution of the problem above.*

An approach involving job and task analysis, specification of behavioral objectives, and formative development of materials and systems was selected as the general strategy. The design requirements included: a resource-based, functional competence approach; multi-level programming, modular instructional units, a learner-centered and learner-active method, transportability and for long-term cost-effectiveness.

Planning and Design were judged to be high priority in development. The development emphasizes teaching these activities in a functional, task-oriented setting.

6. Release Date: *Approximate date product was (or will be) ready for release to next agency.*

Second Quarter 1974

7. Level of Development: *Characteristic level (or projected level) of development of product at time of release. Check one.*

___ *Ready for critical review and for preparation for Field Test (i.e., prototype materials)*
X___ *Ready for Field Test*
___ *Ready for publisher modification*
___ *Ready for general dissemination/diffusion*

8. Next Agency: *Agency to whom product was (or will be) released for further development or diffusion.*

. **Product Description:** *Describe the following; number each description.*

- 1. *Characteristics of the product.*
- 2. *How it works.*
- 3. *What it is intended to do.*
- 4. *Associated products, if any.*
- 5. *Special conditions, time, training, equipment and/or other requirements for its use.*

. The Planning and Design series is a skill-oriented, job-related, training onsisting of modules that permit flexible scheduling by both individuals and small roups. The series is largely learner-managed and emphasizes personal interaction, mmediate and frequent feedback, and special student activities. The series will rovide instructional experiences designed to develop specific skills in finding the est way to plan and design a product or process to meet its established objectives.

. The series will be implemented in three phases: a preparation phase, an intensive earning phase, and an application phase. During the preparation phase, a candidate or training receives detailed information about the training and has a guidance ession with the Instructional Resource Manager (IRM). He then takes a pretest to etermine if he can profit from the course. If he is accepted, he proceeds into the ntensive learning phase. The trainee then works with a set of learning episodes ithin a module focused on a specific skill. Frequent self-evaluation checkpoints nd counseling inform him of his progress. The modules provide simulated applications f the target skills. During the application phase the trainee begins an engineered nternship which may operate concurrently with the learning phase. The trainee evelops a plan for work that he would like to execute at a D,D&E agency. The upervisor of the trainee, the trainee, and his IRM negotiate the plan and set up the nternship. The engineered internship makes possible the specification of job esponsibilities and assignments, establishes performance check points, and provides functional situation in which the trainee applies the skills he has learned, and cquires new ones under realistic conditions.

. The Planning and Design Series is intended to develop compentences in (a) the ormulation of performance specifications; (b) the selection or planning of alternative pproaches and means leading to the desired performance; (c) the analysis and selection f the most promising alternative (or the design of a new alternative); and (d) the reparation of plans for development, evaluation, and dissemination.

. This series is related to and can be linked with the Data/Information Collection and nalysis series; it will be recommended that they be used as concurrent series.

. Approximately 8-10 hours of work will be required to complete each module in the eries with fractional units of credit assigned per module.

he series also requires an Instructional Resources Manager who will coordinate acilities, materials, and student interaction. He will also serve in a resource and valuation role when needed.

10. Product Users: *Those individuals or groups expected to use the product.*

Preservice and inservice D,D&E personnel and continuing education students are expected to use this series.

11. Product Outcomes: *The changes in user behavior, attitudes, efficiency, etc. resulting from product use, as supported by data. Please cite relevant support documents. If claims for the product are not yet supported by empirical evidence please so indicate.*

This series is still in early developmental stages; only limited data on its effectiveness are yet available.

12. Potential Educational Consequences: *Discuss not only the theoretical (i.e. conceivable) implications of your product but also the more probable implications of your product, especially over the next decade.*

Manpower supply and economic reality require that development work be accomplished with relatively large ratios of entry-level professionals. The D,D&E program in general and this series in particular is aimed at preparing personnel on the entry professional level to perform tasks on the lower levels of development, thus freeing the highly trained or more experienced developer for work on the more advanced aspects of D,D&E. This situation will be both more efficient and more cost-effective. The demonstration of an economically justifiable place for entry-level professionals represents a challenge for the Far West Consortium's design, as employers have not traditionally seen a need for specially trained personnel at this level. However, it is hoped that a successful program will lay the ground work for further training and employment.

13. Product Elements: *List the elements which constitute the product.*	**14. Origin:** *Circle the most appropriate letter.*
Module 1.1 The Specification of Expected Outcomes	[✓ D] M A
Assessment Instruments	D M A
Module 1.2 Consideration of Alternatives	[✓ D] M A
Assessment Instruments	D M A
Module 1.3 Planning for Development	[✓ D] M A
Assessment Instruments	D M A
Module 1.4 Planning for Evaluation	[✓ D] M A
Assessment Instruments	D M A
Module 1.5 Planning for Dissemination/Marketing	[✓ D] M A
Assessment Instruments	D M A
Module 1.6 Introduction to Component Design	[✓ D] M A
Assessment Instruments	D M A
	D M A
	D M A
	D M A
	D= Developed *M= Modified* *A= Adopted*

15. Start-up Costs: *Total expected costs to procure, install and initiate use of the product.*

Estimated materials cost $4-5 per module, including assessment instruments. Other supporting materials up to $10 (pro-rated) per series. Staff training time 2-3 days.

16. Operating Costs: *Projected costs for continuing use of product after initial adoption and installation (i.e., fees, consumable supplies, special staff, training, etc.).*

Not knownat this time; however, it is anticipated that the cost will be roughly equivalent to that of a three semester unit university course.

17. Likely Market: *What is the likely market for this product? Consider the size and type of the user group; number of possible substitute (competitor) products on the market; and the likely availability of funds to purchase product by (for) the product user group.*

Entry-level professionals with the skills covered in this program will be in great demand by those employers with the largest (and usually high priority) needs: e.g., development programs and projects of educational laboratories, R&D centers, universities, non-profit agencies, and industry and business. Certainly federal state, intermediate, and local educational agencies will also provide some employment opportunities, but probably to a smaller extent.

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NCERD Reporting Form -- Developmental Products

1. Name of Product Functional Competence Training Model for Development, Dissemination and Evaluation Personnel: Information/Data Collection & Organization

2. Laboratory or Center
Far West Laboratory for Educational Research and Development (FWLERD)

3. Report Preparation
Date prepared January 10, 197
Reviewed by Laboratory Director

4. Problem: *Description of the educational problem this product designed to solve.*

There is a demand for personnel who are qualified to perform at various professional levels in the field of educational development, dissemination, evaluation and implementation.

In the area of collection and organization of data and information, the need is particularly critical.

5. Strategy: *The general strategy selected for the solution of the problem above.*

An approach involving job and task analysis, specification of behavioral objectives, and formative development of materials and systems was selected as the general strategy. The design requirements included: a resource-based, functional competence approach; multi-level programming, modular instructional units, a learner-centered and learner-active method, transportability and for long-term cost-effectiveness.

Collection and organization of data and information were judged to be high priority in development. The development emphasizes individualized instruction in a functional, task-oriented setting.

6. Release Date: *Approximate date product was (or will be) ready for release to next agency.*

Second Quarter, 1974

7. Level of Development: *Characteristic level (or projected level) of development of product at time of release. Check one.*

☐ *Ready for critical review and for preparation for Field Test (i.e. prototype materials)*
☐ *Ready for Field Test*
☒ *Ready for publisher modification*
☐ *Ready for general dissemination/diffusion*

8. Next Agency: *Agency to whom product was (or will be) released for further development/diffusion.*

9. Product Description: *Describe the following; number each description.*

- *1. Characteristics of the product.*
- *2. How it works.*
- *3. What it is intended to do.*
- *4. Associated products, if any.*
- *5. Special conditions, time, training, equipment and/or other requirements for its use.*

1. The Information/Data Collection and Organization Series is a skill-oriented. job-related series consisting of modules that permit flexible scheduling by both individuals and small groups. The series is largely learner-managed and emphasizes interpersonal interaction, immediate and frequent feedback, and special student activities. The course will provide instructional experiences designed to develop specific skills in collecting and organizing information and data.

2. The series will be implemented in three phases: a preparation phase, an intensive learning phase, and an application phase. During the preparation phase, a candidate for training receives detailed information about the course and has a guidance session with the Instructional Resource Manager (IRM). He then takes a pretest to determine whether he can profit from the course. If he is accepted, he proceeds into the intensive learning phase. The trainee then works with a set of learning episodes within a module focused on a specific skill. Frequent self-evaluatio checkpoints and counseling inform him of his progress. The modules provide simulated on-the-job applications of the target skills. During the application phase, the trainee begins an engineered internship. The trainee develops a plan of work that he would like to execute at a particular DD&E agency. The supervisor of the trainee, the trainee, and his IRM negotiate the plan and set up the internship. The engineered internship makes possible the specification of job responsibilities and assignments, establishes performance checkpoints and provides a functional situation in which the trainee applies the skills he has learned, and acquires new ones on the job.

3. Upon completion of the series the trainee is expected to have acquired varying degrees of proficiency in (a) processing and organizing data from observations and interviews; (b) preparing and using visual data displays; (c) data analysis by tally, coding, scoring, etc., and (d) computing common summary descriptive statistics. He will also develop his ability to conduct information searches, using resources such as ERIC, CIJE and libraries, and to organize collected information into appropriate classifications within problem areas; to abstract relevant information on specifics within problem areas; and to present information in the most appropriate form for specified purposes and audiences.

4. This series is related to and can be linked with the Planning and Design and Communication Skills series. These series jointly constitute a significant cluster which provides foundation skills for the remainder of the program of instruction. Opportunity for application and practice of the competences taught in this series has been designed into every other series in the program.

5. Hours of instruction are used only to convey a concept of series duration in conventional terms; the series involves individual or small group work rather than formal classroom sessions. Actual hours of student work for this are estimated to be roughly equivalent to a 3-credit conventional graduate course. The series requires an Instructional Resource Manager to coordinate facilities, materials, and student interaction, and to serve in a resource and evaluation capacity when needed. A film, fimlstrip, slide-tape lesson may be viewed if equipment is available.

10. Product Users: *Those individuals or groups expected to use the product.*

Preservice and inservice D,D&E personnel and continuing education students are expected to use the series

11. Product Outcomes: *The changes in user behavior, attitudes, efficiency, etc. resulting from product use, as supported by data. Please cite relevant support documents. If claims for the product are not yet supported by empirical evidence please so indicate.*

The series is still in the early stage of formative development; as a result, only limited data is available as to its effectiveness.

12. Potential Educational Consequences: *Discuss not only the theoretical (i.e. conceivable) implications of your product but also the more probable implications of your product, especially over the next decade.*

Manpower supply and economic reality require that development work be accomplished with relatively large ratios of professionals. The D,D&E program in general and this series in particular is aimed at preparing personnel at the entry-professional level to perform tasks at the beginning levels of development, thus freeing the highly trained or more experienced developer for work on the more advanced aspects of D,D&E. This situation will be both efficient and cost-effective. The demonstration of an economically justifiable place for the professional represents a major challenge for the Far West Consortium's design. However, it is hoped that a successful program will lay the groundwork for further training and employment.

13. Product Elements: *List the elements which constitute the product.*	**14. Origin:** *Circle the most appropriate letter.*
Module 2.1: Orientation to Collecting and Organizing DD&E	[✓ D] M A
Information and Data and Assessment Instruments	D M A
Module 2.2: Observing and Interviewing and Data and Assessment Instruments	[✓ D] M A
Module 2.3 Data Management and Data and Assessment Instruments	[✓ D] M A
Module 2.4 Data Analysis and Data and Assessment Insturments	[✓ D] M A
Module 2.5 The Retrieval of Information Using Bibliographical Sources	[✓ D] M A
and Data and Assessment Instruments	D M A
Module 2.6 The Retrieval of Information Using Special Sources and Data	[✓ D] M A
and Assessment Instruments	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D= Developed M= Modified A= Adopted

15. Start-up Costs: *Total expected costs to procure, install and initiate use of the product.*

Estimated materials cost $4-5 per module, including assessment instruments. Other supporting materials up to $10 (pro-rated) per series. Staff training time 2-3 days.

16. Operating Costs: *Projected costs for continuing use of product after initial adoption and installation (i.e., fees, consumable supplies, special staff, training, etc.).*

Not known as yet, but would be equivalent to a 3-semester hour college course.

17. Likely Market: *What is the likely market for this product? Consider the size and type of the user group; number of possible substitute (competitor) products on the market; and the likely availability of funds to purchase product by (for) the product user group.*

Entry professionals with the skills covered in this program will be in demand by those employers with the largest (and usually high priority) needs: e.g., development programs and projects of educational laboratories, R&D centers, universities, non-profit agencies, and industry and business. Certainly federal, state, intermediate, and local educational agencies will also provide some employment opportunities, but probably to a smaller extent.

NCERD Reporting Form — Developmental Products

1. Name of Product Functional Competence Training Model for Development, Dissemination and Evaluation Personnel Series 3. Communications Skills	**2. Laboratory or Center** Far West Laboratory for Educational Research and Development (FWLERD)	**3. Report Preparation** *Date prepared* January 10, 1973 *Reviewed by* ______ Laboratory Director

4. Problem: *Description of the educational problem this product designed to solve.*

There is a demand for personnel who are qualified to perform at various professional levels in the field of educational research, development, dissemination and evaluation.

In the area of communications skills, the need is particularly critical, because the communication of information is a constantly recurring and often very important requirement for D,D&E work. Our job and task analysis confirmed the reports of employers that inadequacies in communications skills are frequent and troublesome.

5. Strategy: *The general strategy selected for the solution of the problem above.*

An approach involving job and task analysis, specification of behavioral objectives, and formative development of materials and systems was selected as the general strategy. The design requirements included: a resource-based, functional competence approach; multi-level programming, modular instructional units, a learner-centered and learner-active method, transportability and for long-term cost-effectiveness.

Communications skills was judged to be high priority in development. The development emphasizes teaching communications skills in a functional, task-oriented setting.

6. Release Date: *Approximate date product was (or will be) ready for release to next agency.* Second Quarter, 1974	**7. Level of Development:** *Characteristic level (or projected level) of development of product at time of release. Check one.* ___ *Ready for critical review and for preparation for Field Test (i.e. prototype materials)* ___ *Ready for Field Test* X *Ready for publisher modification* ___ *Ready for general dissemination/diffusion*	**8. Next Agency:** *Agency to whom product was (or will be) released for further development or diffusion.* United States Office of Education.

9. Product Description: *Describe the following; number each description.*

- *1. Characteristics of the product.*
- *2. How it works.*
- *3. What it is intended to do.*
- *4. Associated products, if any.*
- *5. Special conditions, time, training, equipment and/or other requirements for its use.*

1. The Communications Skills series is a skill-oriented, job related program consisting of 4 modules that permit flexible scheduling by both individuals and small groups. The series is largely learner-managed and emphasizes interpersonal interaction, immediate and frequent feedback and special student activities. It will provide instructional experiences designed to develop specific skills in listening, speaking, conference techniques, interviewing, briefing, technical writing, and formal and informal report preparation. Much of the work will be presented as communication exercises.

2. The series will be implemented in three phases: a preparation phase, an intensive learning phase, and an application phase. During the preparation phase, a candidate for training receives detailed information about the course and has a guidance session with the Instructional Resource Manager (IRM). He then takes a pretest to determine whether he can profit from the course. If he is accepted, he proceeds into the intensive learning phase. The trainee then works with a set of learning episodes within a module focused on a specific skill. Frequent self-evaluating checkpoints and counseling inform him of his progress. The modules provide simulated on-the-job applications of the target skills. During the application phase, the trainee begins an engineered internship. Here, the trainee develops a plan of work that he would like to execute at a particular D,D&E agency. The future supervisor of the trainee, the trainee, and his IRM negotiate the plan and set up the internship. The engineered internship makes possible the specification of job responsibilities and assignments, establishes performance checkpoints, and provides a functional situation in which the trainee applies the skills he has learned, and acquires new ones under realistic conditions. This phase may be accomplished concurrently with the learning phase.

3. The trainee who has completed this series will have developed the competences to:

   a. describe the nature of the flow of communication within a DD&E agency; the functions and structure of the major kinds of communiques and documentation; the use of models , charts, audiovisual media, and techniques of oral presentations; and the simple skills used in extending and maintaining relationships to establish rapport and facilitate communication.

   b. plan and outline simple communications; develop and conduct briefings and demonstrations; present informational materials to groups or organizations; write user instructions for completing questionnaires; write simple progress reports and memos; write summaries of test data; prepare scripts for filmstrips or other audiovisual presentations.

4. This series is related to and can be linked with the Planning and Design, and Information/Data Collection and Organization series. These three series jointly constitute a significant cluster which provides foundation skills for the remainder of the program of instruction.

5. An analysis of the training time needed to cope with this series resulted in assigning 8-10 hours per module in the series. Because communication skills include verbal communication and personal preservice and inservice D,D&E personnel and

(continued on page 1 of insert)

9. Product Description: (5 - Continued)

interaction skills, facilities in which a group of those involved in the course can meet together are necessary.

The series also requires an Instructional Resource Manager who will coordinate facilities, materials, and student interaction. He will also serve in a resource and evaluation capacity when needed.

10. Product Users: *Those individuals or groups expected to use the product.*

Continuing education students are expected to use the series.

11. Product Outcomes: *The changes in user behavior, attitudes, efficiency, etc. resulting from product use, as supported by data. Please cite relevant support documents. If claims for the product are not yet supported by empirical evidence please so indicate.*

The series is presently undergoing formative development. At present, no data on its effectiveness are available.

12. Potential Educational Consequences: *Discuss not only the theoretical (i.e. conceivable) implications of your product but also the more probable implications of your product, especially over the next decade.*

Manpower supply and economic reality require that development work be accomplished with relatively large ratios of professionals. The D,D&E program in general and this series in particular is aimed at preparing personnel on the professional level to perform tasks at the beginning levels of development, thus freeing the highly trained or more experienced developer for work on the more advanced aspects of D,D&E. This situation will be both more efficient and cost-effective. The demonstration of an economically justifiable place for the entry professional represents a major challenge for the Far West Consortium's design. However, it is hoped that a successful program will lay the groundwork for further training and employment.

13. Product Elements: *List the elements which constitute the product.*	**14. Origin:** *Circle the most appropriate letter.*
Module 3.1: Listening and Speaking	[✓ D] M A
Assessment Instruments	D M A
	D M A
Module 3.2: Technical Writing: Guidance and Instructional Materials	[✓ D] M A
Assessment Instruments	D M A
	D M A
Module 3.3: Technical Writing: Work Support Documents	[✓ D] M A
Assessment Instruments	D M A
	D M A
Module 3.4: Technical Writing: Formal Publications	[✓ D] M A
Assessment Instruments	D M A
	D M A
	D M A
	D M A
	D M A
	D= Developed *M= Modified* *A= Adopted*

15. Start-up Costs: *Total expected costs to procure, install and initiate use of the product.*

Estimated materials cost $4-5 per module, including assessment instruments. Other supporting materials up to $10 (pro-rated) per series. Staff training time 2-3 days.

16. Operating Costs: *Projected costs for continuing use of product after initial adoption and installation (i.e., fees, consumable supplies, special staff, training, etc.).*

Not known at this time, but might be equivalent to a 3-hour semester college course.

17. Likely Market: *What is the likely market for this product? Consider the size and type of the user group; number of possible substitute (competitor) products on the market; and the likely availability of funds to purchase product by (for) the product user group.*

Professionals with the skills covered in this program will be in demand by those employers with development programs and projects such as educational laboratories, R&D centers, universities, non-profit agencies, and industry and business. Certainly federal, state, intermediate, and local educational agencies will also provide some employment opportunities, but probably to a smaller extent.

NCERD Reporting Form — Developmental Products

1. Name of Product Functional Competence Training Model for Development, Dissemination and Evaluation Personnel.
Series 4: Developmental Engineering

2. Laboratory or Center Far West Laboratory for Educational Research and Development (FWLERD)

3. Report Preparation
Date prepared Jan. 10, 1973
Reviewed by Laboratory Director

4. Problem: *Description of the educational problem this product designed to solve.*

There is a demand for personnel who are qualified to perform at various professional levels in the field of educational research, development, dissemination, evaluation and implementation.

This need is particularly critical in the area of Developmental Engineering. Through literature survey and analysis, time sampling, and task inventories, it was determined that Developmental Engineering can be performed by persons with appropriate training at the entry professional level.

5. Strategy: *The general strategy selected for the solution of the problem above.*

An approach involving job and task analysis, specification of behavioral objectives, and formative development of materials and systems was selected as the general strategy. The design requirements included: a resource-based, functional competence approach; multi-level programming, modular instructional units, a learner-centered and learner-active method, transportability and for long-term cost-effectiveness.

Developmental Engineering was judged to have a high priority for development. The design emphasized teaching the activities involved in this area in a functional task-oriented setting.

6. Release Date: *Approximate date product was (or will be) ready for release to next agency.*

Second quarter 1974

7. Level of Development: *Characteristic level (or projected level) of development of product at time of release. Check one.*

[✓ *Ready for critical review and for preparation for Field Test (i.e. prototype materials)*]
Ready for Field Test
Ready for publisher modification
Ready for general dissemination/diffusion

8. Next Agency: *Agency to whom product was (or will be) released for further development/diffusion.*

Product Description: *Describe the following; number each description.*

- *1. Characteristics of the product.*
- *2. How it works.*
- *3. What it is intended to do.*
- *4. Associated products, if any.*
- *5. Special conditions, time, training, equipment and/or other requirements for its use.*

1. The Developmental Engineering Series is a skill-oriented, job-related set of graduate level materials which may be used by individuals or groups as a whole or in separate modules. The materials include frequent feedback and reinforcement, and provide instructional experiences in establishing developmental objectives, engineering a sample component of a product, combining components, using test information as a basis for modification or improvement, coping with special problems in development, and locating and employing technical materials, aids and resources for development. The modules are accompanied by a battery of assessment instruments.

2. The series is implemented in three phases: a preparation phase, an intensive learning phase, and an application phase. In the first, the instructional resource manager provides the trainee with information about the series and gives a pretest to determine its usefulness to him. In the second phase the trainee works with a set of learning episodes within a module focused on a specific skill. In the third phase, the trainee develops, with his work supervisor and his instructional resource manager, a work plan to apply on the job the skills he has learned.

3. The trainee on the entry professional level who has completed this course should have the following competencies:

   a. he should be familiar with techniques of retrieval and use of materials and processes, methods, and subject area content needed for construction of educational products.
   b. given necessary specifications and supervision, he should be able to devise and communicate product specifications and development schedules.
   c. given necessary supervision and job aids, he should be able to construct simple components of educational products, integrate them into larger entities, and assist production personnel to develop them according to specification.
   d. he should be familiar with the process of review and revision, and the establishment of criteria for testing, and final judgment of a product.

4. This series can be linked with the Planning and Design Series, especially Module 1.3 "Planning for Development". It is also related to the Evaluation Series.

5. An analysis of the training time has resulted in assignment of 45 credit hours of training per semester to this series.* The materials require an Instructional Resource Manager who will coordinate facilities, resources and student interaction. He will also serve in a resource and evaluation capacity when needed.

* 8-10 hours per module

10. Product Users: *Those individuals or groups expected to use the product.*

Preservice and inservice DD&E personnel and continuing education students are expected to use this series.

11. Product Outcomes: *The changes in user behavior, attitudes, efficiency, etc. resulting from product use, as supported by data. Please cite relevant support documents. If claims for the product are not yet supported by empirical evidence please so indicate.*

This series is still undergoing formative development, therefore data as to its effectiveness are not yet available.

12. Potential Educational Consequences: *Discuss not only the theoretical (i.e. conceivable) implications of your product but also the more probable implications of your product, especially over the next decade.*

Manpower supply and economic reality require that development work be accomplished with relatively large ratios of professionals. The DD&E program in general and this series in particular are aimed at preparing personnel at the entry professional level to perform tasks at the beginning levels of development, thus freeing the highly trained or more experienced developer for work on the more advanced aspects of DD&E. This distribution of tasks will be both efficient and cost-effective. The demonstration of an economically justifiable place for the entry professional represents a major challenge for the Far West Consortium's design. However, it is hoped that a successful program will lay the groundwork for further training and employment.

13. Product Elements: *List the elements which constitute the product.*	**14. Origin:** *Circle the most appropriate letter.*
Module 4.1: Establishing Developmental Objectives	[✓ D] M A
Assessment Instruments	D M A
Module 4.2: Engineering a Component and Assessment Instruments	[✓ D] M A
Module 4.3: Integrating Product Components and Assessment Instruments	[✓ D] M A
Module 4.4: Tryout and Revision and Assessment Instruments	[✓ D] M A
Module 4.5: Special Problems in Development and Assessment Instruments	[✓ D] M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D= Developed *M= Modified* *A= Adopted*

15. Start-up Costs: *Total expected costs to procure, install and initiate use of the product.*

Start-up costs cannot be assessed at this time, however, it is anticipated that the cost of this series will be roughly equivalent to that of a three-hour university course.

16. Operating Costs: *Projected costs for continuing use of product after initial adoption and installation (i.e., fees, consumable supplies, special staff, training, etc.).*

Operating costs are not yet known, however, they will probably be roughly equivalent to those of a three hour university course.

17. Likely Market: *What is the likely market for this product? Consider the size and type of the user group; number of possible substitute (competitor) products on the market; and the likely availability of funds to purchase product by (for) the product user group.*

Entry professionals with the skills covered by this series will be in demand by those employers with the largest (and usually high priority) needs: eg., development projects of educational laboratories, R&D centers, universities, non-profit agencies, and industry and business. Federal, state and local educational agencies will also provide some employment opportunities.

NCERD Reporting Form — Developmental Products

1. Name of Product Functional Competence Training Model for Development, Dissemination and Evaluation Personnel. Series 5: Evaluation	**2. Laboratory or Center** Far West Laboratory for Educational Research and Development (FWLERD)	**3. Report Preparation** *Date prepared* Jan. 10, 1973 *Reviewed by* Laboratory Director

4. Problem: *Description of the educational problem this product designed to solve.*

There is a demand for personnel qualified to perform at various professional levels in the field of educational research, development, dissemination, evaluation, and implementation.

In the area of Evaluation, the need is particularly critical. Through literature survey and analysis, time sampling, and task inventories, it was determined that evaluation is an activity in the D,D&E process which can be performed by persons with appropriate training at the entry-professional level.

5. Strategy: *The general strategy selected for the solution of the problem above.*

An approach involving job and task analysis, specification of behavioral objectives, and formative development of materials and systems was selected as the general strategy. The design requirements included: a resource-based, functional competence approach; multi-level programming, modular instructional units, a learner-centered and learner-active method, transportability and for long-term cost-effectiveness.

Evaluation was judged to be of high priority in development. The development emphasizes teaching in a functional, task-oriented settings.

6. Release Date: *Approximate date product was (or will be) ready for release to next agency.*

Second quarter - 1974

7. Level of Development: *Characteristic level (or projected level) of development of product at time of release. Check one.*

X *Ready for critical review and for preparation for Field Test (i.e. prototype materials)*
___ *Ready for Field Test*
___ *Ready for publisher modification*
___ *Ready for general dissemination/diffusion*

8. Next Agency: *Agency to whom product was (or will be) released for further development/diffusion.*

Product Description: *Describe the following; number each description.*

- *1. Characteristics of the product.*
- *2. How it works.*
- *3. What it is intended to do.*
- *4. Associated products, if any.*
- *5. Special conditions, time, training, equipment and/or other requirements for its use.*

1. The Evaluation Series is a skill-orientated, job-related, series consisting of modules that permit flexible scheduling by both individuals and small groups. The series is largely learner-managed and emphasizes personal interaction, immediate and frequent feedback, and special student activities. The series will provide instructional experiences designed to develop specific skills in finding the best way to evaluate if a product meets its established objectives.

2. The series will be implemented in three phases: a preparation phase, an intensive learning phase, and an application phase. During the preparation phase, a candidate for training receives detailed information about the series and has a guidance session with the Instructional Resource Manager (IRM). He then takes a pretest (a simulated task) to determine if he can profit from the training.If he is accepted, he proceeds into the intensive learning phase. The trainee then works with a set of learning episodes within a module focused on a specific skill. Frequent self-evaluation checkpoints and counseling inform him of his progress. The modules provide simulated applications of the target skills. During the application phase, which may operate concurrently with the learning phase, the trainee is tested on his competencies and then begins an engineered internship. The trainee develops a plan for work that he would like to execute at a D,D&E agency. The supervisor of the trainee, the trainee, and his IRM negotiate the plan and set up the internship. The engineered internship makes possible the specification of job responsibilities and assignments, establishes performance check points, and provides a functional situation in which the trainee applies the skills he has learned, and acquires new ones under realistic conditions.

3. The Evaluation series is intended to provide instructional experiences in (a) the logical and methodological basis of evaluation, (b) the kinds of evaluation peculiar to DD&E activities and (c) techniques and procedures for coping with practical evaluation problems.

4. This series is related to and can be linked with the Data/Information Collection and Analysis series; it will be recommended that they be used concurrently.

5. An analysis of the training time resulted in the assignment of 8 to 10 hours of work with each module in the series with fractional credits per module.

The course requires an Instructional Resource Manager who will coordinate facilities, materials and student interaction. He will also serve in a resource and evaluation capacity when needed.

10. Product Users: *Those individuals or groups expected to use the product.*

Preservice and inservice D,D&E personnel and continuing education students are expected to use the course.

11. Product Outcomes: *The changes in user behavior, attitudes, efficiency, etc. resulting from product use, as supported by data. Please cite relevant support documents. If claims for the product are not yet supported by empirical evidence please so indicate.*

The series is still in early developmental stages: as a result, no data on its effectiveness are yet available.

12. Potential Educational Consequences: *Discuss not only the theoretical (i.e. conceivable) implications of your product but also the more probable implications of your product, especially over the next decade.*

Manpower supply and economic reality require that development work be accomplished with relatively large ratios of entry-level professionals. The D,D&E program in general and this series in particular is aimed at preparing personnel on the entry professional level to perform tasks on the lower levels of development, thus freeing the highly trained or more experienced developer for work on the more advanced aspects of DD&E. This situation will be both more efficient and more cost-effective. The demonstration of an economically justifiable place for entry-level professionals represents a challenge for the Far West Consortium's design, as employers have not traditionally seen a need for specially trained personnel at this level. However, it is hoped that a successful program will lay the groundwork for further training and employment.

13. Product Elements: *List the elements which constitute the product.*		**14. Origin:** *Circle the most appropriate letter.*
Module 5.1	The Role of Evaluation in D,D&E	[✓ D] M A
	Assessment Instruments	D M A
Module 5.2	Tests and Measures	[✓ D] M A
	Assessment Instruments	D M A
Module 5.3	Development of Instruments	[✓ D] M A
	Assessment Instruments	D M A
Module 5.4	Field Tests	[✓ D] M A
	Assessment Instruments	D M A
Module 5.5	Evaluation Problems	[✓ D] M A
	Assessment Instruments	D M A
		D M A
		D M A
		D M A
		D M A
		D M A
		D= Developed *M= Modified* *A= Adopted*

15. Start-up Costs: *Total expected costs to procure, install and initiate use of the product.*

Not know at this time; however, it is anticipated that the cost will be roughly equivalent to that of a university course.

16. Operating Costs: *Projected costs for continuing use of product after initial adoption and installation (i.e.,fees, consumable supplies, special staff, training, etc.).*

Not known at this time; however it is anticipated that the cost will be roughly equivalent to that of a university course.

17. Likely Market: *What is the likely market for this product? Consider the size and type of the user group; number of possible substitute (competitor) products on the market; and the likely availability of funds to purchase product by (for) the product user group.*

Entry-level professionals with the skills covered in this program will be in great demand by those employers with the largest (and usually high priority) needs: e.g., development programs and projects of educational laboratories, R&D centers, universities, non-profit agencies, and industry and business. Certainly federal, state, intermediate, and local educational agencies will also provede some employment opportunities, but probably to a smaller extent.

NCERD Reporting Form — Developmental Products

1. Name of Product Functional Competence Training Model for Development, Dissemination & Evaluation Personnel. Series 7 Dissemination & Marketing	**2. Laboratory or Center** Far West Laboratory for Educational Research & Development (FWLERD)	**3. Report Preparation** *Date prepared* Jan. 10, 1973 *Reviewed by* Laboratory Director

4. Problem: *Description of the educational problem this product designed to solve.*

There is a major demand for personnel who are qualified to perform at various professional levels in the field of educational research, development, dissemination, and evaluation. Surveys of current training programs for developers indicate that the output is miniscule in relation to the demand.

In the area of dissemination and marketing, the need is particularly critical. Through literature survey and analysis, time sampling, and task inventories, it was determined that dissemination and marketing are activities in the DD&E process which can be performed by persons with appropriate training at the entry professional level.

5. Strategy: *The general strategy selected for the solution of the problem above.*

An approach involving job and task analysis, specification of behavioral objectives, and formative development of materials and systems was selected as the general strategy. The design requirements included: a resource-based, functional competence approach; multi-level programming, modular instructional units, a learner-centered and learner-active method, transportability and for long-term cost-effectiveness.

Dissemination and marketing were judged to be of high priority in development. The development emphasized teaching these activities in a functional, task-oriented setting.

6. Release Date: *Approximate date product was (or will be) ready for release to next agency.* Second quarter 1974	**7. Level of Development:** *Characteristic level (or projected level) of development of product at time of release. Check one.* ☒ *Ready for critical review and for preparation for Field Test (i.e. prototype materials)* ☐ *Ready for Field Test* ☐ *Ready for publisher modification* ☐ *Ready for general dissemination/diffusion*	**8. Next Agency:** *Agency to which product was (or will be) released for further development/diffusion.*

Product Description: *Describe the following; number each description.*

- *1. Characteristics of the product.*
- *2. How it works.*
- *3. What it is intended to do.*
- *4. Associated products, if any.*
- *5. Special conditions, time, training, equipment and/or other requirements for its use.*

1. The Dissemination and Marketing Series is a skill-oriented, job-related training consisting of instructional modules that permit flexible use by both individuals and small groups. The series is largely learner-managed and emphasizes interpersonal interaction, immediate and frequent feedback and special student activities. The series will provide instructional experiences designed to develop specific skills in finding the best way to disseminate and market a product that meets its established objective.

2. The series will be implemented in three phases: a preparation phase, an intensive learning phase, and an application phase. During the preparation phase, a candidate for training receives detailed information about the training and has a guidance session with the Instructional Resource Manager (IRM). He then takes a pretest to determine if he/she can profit from the course. If accepted he/she proceeds into the intensive learning phase. The trainee then works with a set of learning episodes within a module focused on a specific skill. Frequent self-evaluation checkpoints and counseling inform him/her of his/her progress. The modules provide simulated applications of the target skills. During the application phase, which may operate concurrently with the learning phase, the trainee begins an Engineered Internship, developing a plan for work that he/she would like to execute at a R&D agency. The work supervisor of the trainee, the trainee, and his IRM negotiate the plan and set up the internship. The Engineered Internship makes possible the specification of job responsibilities and assignments, establishes performance checkpoints, and provides a functional setting in which the trainee applies the skills learned from the modules and acquires new ones on the job.

3. The Dissemination and Marketing Series is intended to provide instructional experiences in the field of public relations and educational marketing. The training modules encompass relevant aspects of journalism, public presentation, publications, visitor reception, mailing lists, market analysis, copyright, etc. The overall intent of the series is to provide familiarization with and understanding of media, graphics, reproduction processes, market research, legal constraints, communication techniques, etc., as they apply to educational DD&E.

4. This series can be linked with the Communication Skills Series. Opportunity for application and practice of the competencies taught in this series has been designed into all series in the program.

5. Analysis of the training time needed to cope with this series has resulted in the assignment of 8 to 10 hours for each module in the series with fractional units of credit per module. The course requires an Instructional Resource Manager who will coordinate facilities, materials, and student interaction. He will also serve in a resource and evaluation capacity when needed.

10. Product Users: *Those individuals or groups expected to use the product.*

Preservice and inservice DD&E personnel and continuing education students are expected to use this series.

11. Product Outcomes: *The changes in user behavior, attitudes, efficiency, etc. resulting from product use, as supported by data. Please cite relevant support documents. If claims for the product are not yet supported by empirical evidence please so indicate.*

The series is still in early developmental stages. As a result, no data on its effectiveness are yet available.

12. Potential Educational Consequences: *Discuss not only the theoretical (i.e. conceivable) implications of your product but also the more probable implications of your product, especially over the next decade.*

Manpower supply and economic reality require that development work be accomplished with relatively large ratios of entry-level professionals. The DD&E program in general and this series in particular are aimed at preparing personnel on the entry professional level to perform tasks on the lower levels of development, thus freeing the highly trained or more experienced developer for work on the more advanced aspects of DD&E. This situation will be both more efficient and most cost-effective. The demonstration of an economically justifiable place for entry-level professionals represents a challenge for the Far West Consortium's design, as employers have not traditionally seen a need for specially trained personnel at this level. However, it is hoped that a successful program will lay the groundwork for further training and employment.

13. Product Elements: *List the elements which constitute the product.*	**14. Origin:** *Circle the most appropriate letter.*
Module 7.1 Design & Evaluation of Dissemination & Marketing Models	[✓ D] M A
and Assessment Instruments	D M A
Module 7.2 Working with the Consumer and Assessment Instruments	[✓ D] M A
Module 7.3 Installing Educational Products and Assessment Instruments	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D M A
	D= Developed M= Modified A= Adopted

15. Start-up Costs: *Total expected costs to procure, install and initiate use of the product.*

Not known at this time; however, it is anticipated that the cost will be roughly equivalent to that of a university course.

16. Operating Costs: *Projected costs for continuing use of product after initial adoption and installation (i.e.,fees, consumable supplies, special staff, training, etc.).*

Not known at this time; however, it is anticipated that the cost will be roughly equivalent to that of a university course.

17. Likely Market: *What is the likely market for this product? Consider the size and type of the user group; number of possible substitute (competitor) products on the market; and the likely availability of funds to purchase product by (for) the product user group.*

Entry-level professionals with the skills covered in this program will be in great demand by those employers with the largest (and usually high priority) needs, eg., development programs and projects of educational laboratories, R&D centers, universities, non-profit agencies, and industry and business. Certainly federal, state, intermediate, and local educational agencies will also provide some employment opportunities, but probably to a smaller extent.

Appendix I: LONG-RANGE PLANS

Introduction

The plans for Consortium activities beyond August 31, 1974, outlined below, are tentative. They are the result of informal discussions and two meetings of the Consortium Planning Committee. Plans developed by the committee have been adjusted to reflect the decision to undertake "no further development" in the paraprofessional and advanced professional programs.

Continuation of the Far West Consortium will insure the strengthening, refinement, and expansion of Consortium training in the Bay Area, the strengthening and refinement of training materials, and the dissemination of the training system and training materials throughout the nation.

Planning for Consortium directions and activities beyond 1974 must include consideration of a number of factors based on additional testing of the Functional Competence Training System. Test results will provide information on the flexibility and adequacy of training to meet changing DD&E needs. Consideration must also be given to shifts based on changing needs seen by NIE so further program development may reflect training requirements current at that time.

Background

In outlining our plans for 1974 and beyond we have essentially followed the guidelines of the Design Report (1970). However, such factors as the revised projections of DD&E personnel training requirements by Hopkins (1971), the quest for economy in higher education, and the movement towards awarding of credit for off-campus learning, required a re-evaluation of our emphasis on pre-service training.

Administrators in DD&E agencies have indicated that they are more interested in extending and upgrading the DD&E competences of current staff than in new hires. In view of the current depressed job market, we are projecting that DD&E agencies will be more inclined to solve their training needs through the use of continuing education of current employees than through employment of graduates of the pre-service programs. Our view of personnel requirements in DD&E is best expressed by Baldridge and Johnson (1972, p 48): "With the current depressed job market the problem is not to find people, of course, but to find and keep the strongest people." Currently, the demand for additional personnel in educational DD&E is not greater than the supply; but there are still major discrepancies between the content of training programs and the actual requirements of DD&E positions. We are exploring the possibilities of establishing continuing education programs next year in one or two Consortium agencies and in another agency outside the Far West Consortium geographical region. Information obtained on the servicing and training requirements for these continuing education programs will provide valuable experience for planning dissemination strategies. Thus, the objective of developing flexible continuing education programs set forth in the Design Report (1970, p 2.3), has taken on a new importance in the light of a changing job market.

Our plans will be discussed under the headings: (1) Training Implementation in the Far West Consortium's Region, (2) Continued Training Development; and (3) Dissemination/Distribution.

Training Implementation in the Far West Consortium Region

Training implementation in the Far West Consortium region would continue beyond 1974 in the forms of pre-service and continuing education.

The Pre-service (MA) program would continue at CSUSF with around 20 students enrolled in the program. There is a possibility that other institutions of higher learning might offer pre-service programs within the region of the Consortium.

Continuing education programs would be offered at participating R&D agencies for about 15 - 25 students. Participants in this program will have three options: (1) to acquire course credit for their work through extension arrangements, (2) to get certification of competence through the use of assessment instruments, and (3) to make informal use of the training materials.

In addition to the above modes, DD&E training might be offered in such other forms as institutes and workshops.

The range and depth of training offered by the Consortium will depend on a number of factors:

1. level of funding for training provided by NIE;
2. regional or local demand for training at public and private educational institutions;
3. regional or local demand by business and industry for training closely allied to educational R&D.

If, by the mid- 70's, a strong demand for training should emanate from state and local educational agencies, they might begin to offer inservice training through use of Consortium-developed materials. Continuing education might be made available at cost to nearby private and public agencies and business and industrial firms as part of an adult education outreach program, possibly through university extension systems.

Continued Development of Systems and Materials

There are two main aspects of continued development: (1) revision of the systems based on operational field testing and; (2) adaptation of materials to a variety of delivery forms.

Revision based on field testing. In section one of this report we projected that the Functional Competence Training Program might be introduced, in the form of operational testing, at 10 - 20 institutes of higher learning during the first couple of years of dissemination. The monitoring and summative evaluation of these programs would require \$20,000 - \$40,000 a year and funds required for revision of the program (around 1977 - 1978) are estimated at \$80,000 - \$120,000.

Adaptation of materials. To date, primary emphasis has been on developing pre-service programs for entry professional personnel, yet the largest potential market may well emerge from the satisfaction of the continuing education requirements of DD&E agencies and institutions. Therefore, the Consortium proposes to adapt present materials to create a comprehensive training system in continuing education. The amount of support required for the revision of materials for the continuing education model is estimated at \$50,000 to \$80,000.

Another extension of the Consortium's effort would be development of the training materials for workshop and institute training. A repackaging of materials in these forms and the development of relevant guides would require \$40,000 - \$60,000.

Dissemination/Distribution

Implementation progress of the Functional Competence Training Program could take the following forms:

1. Training Consortia. Training consortia implementing the Functional Competence Training Program could vary in size from very small, consisting of one DD&E agency and academic institution to very large, consisting of sevral developmental agencies and academic institutions. We project five to eight sites in the country where the latter might be installed. Numerous small consortia may be established to satisfy DD&E training requirements wherever the need exists.
2. Preservice programs leading to MA degree. These programs can be disseminated to colleges and training institutions throughout the country. (We projected 10 - 20 such applications) Some servicing and training of personnel operating these programs will be required.
3. Continuing education programs. These programs will be adaptable to a variety of on-site, off-site; accredited, non-credited; supervised,or self-study situations.
4. Instructional materials (modules) in the DD&E competence areas. By 1974, we will have developed and tested over 30 modules at the entry professional level, which will be available to satisfy specific training requirements of individuals.
5. Developmental Consortium Model. This model, with its supporting systems, brings a full capability to satisfy developmental requirements. The model could be used by small projects (such

as RTB Model Training Projects) or large combinations of agencies. Dissemination and support of this model would almost certainly require federal funding for a number of years.

By August 31, 1974, a variety of products will have been developed and tested. These products range from the Consortium Developmental Model, with its supporting systems and its capability to develop and test materials and programs, to the smallest module of a particular functional context area. The costs of these products may vary from a few dollars to several thousand. The wide variety of Consortium products requires that different dissemination/distribution strategies be considered for each. We will find some means to distribute the particular product required to satisfy the identified need. Our major concern is to find the best way.

There are several distribution alternatives that should be studied. A revolving fund might be established by the FWL for the distribution, sale, and continuing duplication of materials. Furthermore, the Consortium's products can be: (a) sold by the Superintendent of Documents or the National Audiovisual Center and promoted by NIE or by members of the Consortium (if funded for that task); (b) offered to the educational publishing and knowledge industries on an RFP or limited-market basis under a five year license , and then released in the public domain; (c) produced and marketed by an independent non-profit agency established jointly by Far West Consortium member agencies empowered to provide assessment, certification, products and services at cost plus overhead; (d) distributed to a network of regional service agencies (such as BOCES, RISE, etc.) for reproduction and use in various areas; (e) distributed to university extension divisions on a regional basis and then offered on demand; (f) distributed to those state education agencies that would commit themselves to duplicate the materials and offer the training in adult education and pre-service and in-service programs of state colleges; or (g) transferred to a national professional organization such as UCEA, AASA, ASCD, AAAS, or AERA which could promote and sell all the components, not just to its own membership, but to the other potential markets.

We also anticipate a number of problems that must be considered in our dissemination strategy. Our Instructional System, to be effective, requires significant changes in the approach to instruction when compared with more conventional programs. Additionally, the instructional effectiveness of our products and systems must be demonstrated to potential users. Operational models should be available that demonstrate the functioning of the Engineered Internship and the Learning Laboratory. Prepared briefings and traveling seminars may prove appropriate means of disseminating information about the Consortium's products. Finally, test data resulting from the summative evaluation of our system and its products will have to be published or otherwise made available.

Appendix J: EXPLORATION OF VARIABLES AND ALTERNATIVE CONFIGURATION OF THE ENGINEERED INTERNSHIP

The Engineered Internship provides the trainee with opportunities to apply the DD&E competences he/she is acquiring in actual DD&E work situations. The Engineered Internship work plan is developed jointly by the trainee, the Instructional Resource Manager and the trainee's work supervisor. All three meet periodically to plan and evaluate the trainee's progress. The Engineered Internship is described in detail in the Instructional Resource Manager's Guide. (A copy of this guide was given to members of the site visit team in October.)

In a letter, dated November 22, 1972, Dr. Susan Klein of the Task Force on Researcher Training outlined a set of questions pertaining to the Engineered Internship. In response to these questions we will develop by April 1, 1973, a design for the exploration of variables and alternative configurations of the Engineered Internship and pursue this exploration throughout the rest of the project.

Lines of exploration may include the following:

1. Use of the Engineered Internship model for academic credit versus non-credit for in-service training.

2. Use of the Engineered Internship with the same Instructional Resource Manager and work supervisor for the entire period of instruction versus using different Instructional Resource Managers and work supervisors.

3. Study of the essential characteristics and variables of the triad of the Engineered Internship. Effects on trainee competence of the patterns of interaction between the trainee and Instructional Resource Manager, the trainee and work supervisor, the Instructional Resource Manager

and the work supervisor, and among all three will be given careful consideration. (We plan to use multi-variance analysis of variance models with quality indicators of the relationship between each pair and, in terms of the triad itself, as "design variables" to be related to a battery of performance indicators, since deliberate manipulation of these relationship variables would be both difficult and impractical.)

4. The effect of instructional group or team work on trainee performance.

5. A cost analysis of the Engineered Internship.

Appendix K: A COMPARATIVE ANALYSIS OF TRAINING DEVELOPMENT

Figure 5a presents a comparison of projected and actual accomplishments in the development of entry-level professional training materials during 1972. An analysis of the information indicates that in the Planning and Design and Communication Skills Series the actual accomplishments match projected accomplishments. In the Information/Data Collection Series, one module is in the projected state and four modules are one step behind schedule. In the Developmental Engineering Series, three modules are on target and two one step behind. In the Evaluation Series, four of the five modules are under revision, however, two of these four require major revision and thus are considered "cycled back" for prototype development. One module is in prototype development (one step behind). In the Dissemination and Marketing Series, one module is on target and two modules are one step behind. The Analysis and Design and Management Series are one step behind.

Figure 5b presents a comparison of projected and actual accomplishments in the development of paraprofessional training materials. Before an analysis is made, it should be noted that developmental activities in this program were halted in October, 1972, in compliance with the recommendations of the site visit team. An analysis of the figure shows that three series (Planning and Design, Information/Data Collection, and Communication Skills) are one step behind schedule. Developmental Engineering is close to target, as some drafts have already been used in a course setting. The Evaluation Series is a step and a half behind.

Figure 5c refers to the advanced professional program. Instead of developing three specific series at this level, we decided early in 1972 to move toward development of a comprehensive program in R&D leadership. A preliminary design was developed and six students are participating in a pilot program supported by U.C. Berkeley.

An overall look at the information presented above indicates that the project is behind schedule in some areas. There are several reasons that may explain why. First, the scope of the program as presented in the design document was developed in anticipation of significantly more financial support than was received during the first two years. In spite of the reduced funding, we attempted to implement the original program scheme. Second, we have involved too many member agencies in development too soon, without having adequate lead time to construct developmental models, procedures, use guides, etc. Third, in an attempt to involve and share resources among many Consortium members, our potential to establish a strong in-house monitoring and quality control capability was weakened.

The impact of the conditions described above was manifested in a less than desirable state of formative development of systems and materials and in a cumulative delay in production. The corrective measures taken mid-year of 1972 have moved us in the right direction in coping with these deficiencies. Furthermore, in compliance with the recommendations of the Fall 1972 site visit team, we have already implemented a scoping down of the program.

Figure 5a

Entry-level Professional Program

Time Period / Series	Projected Accomplishments 9/71-1/72	2/72-6/72	7/72-8/72	9/72-1/73	Actual Accomplishments 1/73
Planning & Design	Test Prototype Form			Revise and Develop Field Test Form	All six modules in revision and development of field test form.
Information/Data Collection	Test Prototype Form	Revise and Develop Field Test Form		Test Field Test Form	One of five modules in field testing, four modules in revision and development of field test form.
Communication Skills	Develop Prototype Form	Test Prototype Form		Revise and Develop Field Test Form	All four modules in revision and development of field form.
Developmental Engineering			Develop Prototype Form	Test Prototype Form	Three of the five modules in prototype testing. Two modules in prototype development.
Evaluation	Develop Prototype Form	Test Prototype Form		Revise and Develop Field Test Form	Two of the five modules in revision and development of field test form. Three modules cycled back for prototype development.
Dissemination/ Marketing	Develop Prototype Form			Test Prototype Form	One of three modules is in prototype testing, two modules in prototype development.
Analysis				Develop Prototype Form	Planning for development started. Prototype development not started. Decision to initiate development will be made by 5/1/73 contingent on cost analysis.
Management		Develop Prototype Form		Develop Prototype Form	

Figure 5b

Paraprofessional Program

Projected Accomplishments | Actual Accomplsihments 1/73

Time Period / Series	9/71-1/72	2/72-6/72	7/72-8/72	9/72-1/73	
Planning & Design	Test Prototype Form	Revise and Develop Field Test Form		Test Field Test Form	Modules in prototype testing, revision halted due to low priority designation of the paraprofessional program.
Information/Data Collection	Test Prototype Form	Revise and Develop Field Test Form		Test Field Test Form	Modules in prototype testing, revision for field test halted due to low priority designation of the paraprofessional program.
Communication Skills	Test Prototype Form	Revise and Develop Field Test Form		Test Field Test Form	Modules in prototype testing, revision for field test halted due to low priority designation of paraprofessional program.
Developmental Engineering				Develop & Test Prototype Form	First drafts of prototype form of modules developed.
Evaluation	Develop Prototype Form	Test Prototype Form		Revise & Develop Field Test Form	First draft of prototype form of module developed.

Figure 5c

Advanced Professional Program

Projected Accomplishments | Actual Accomplishments 1/73

Information/Data Collection & Organization				Develop Prototype Form	Design for advanced professional program in educational R&D developed and plans made for pilot program commencing Jan.1973.
Communication Skills				Develop Prototype Form	
Management				Develop	

Appendix L: THE EDUCATIONAL INFORMATION CONSULTANT SKILLS IN DISSEMINATING EDUCATIONAL INFORMATION

The Educational Information Consultant Instructional System is the product of a recently completed two-year development effort of the Far West Laboratory for Educational Research and Development. During the first year of this project, funded by the U.S. Office of Education's Research Training Branch, a 30-hour competence-based training course was designed to train persons to perform a role of linking the educational practitioner with the output of educational research and development (R&D) through dissemination of information about R&D. This person was named the Educational Information Consultant (EIC).

A second year was invested in the further development and testing of the EIC instructional system, supported by the U.S. Office of Education's National Center for Educational Communication. During this phase, three alternative delivery forms of the instructional materials (a course form, an instititue form, and a learning team form) were developed and validated. These versions incorporated revisions indicated by previous testing, and were designed to be complete, self-contained packages, ready for use without the Laboratory's supervision.

The final version of this product is available in two distinct packages: a Course/Institute form, designed for use by an instructional manager in a classroom setting, and a learning team form, designed to be self-administered by a group of at least three trainees and monitored through correspondence with an instructional manager at a central educational facility. These two forms are identical in content and modular sequence. The learning team form differs from the Course/Institute form primarily in the addition of content added to make the materials self-instructional.

The training is based on a model which covers five major processes in the EIC role:

Negotiation:	To identify, analyze, assess, and define specifically the problem and attendant information need(s) of a client.
Retrieval:	To develop a search strategy and locate, identify, and secure R&D information pertinent to the client's problem and request.
Transformation:	To screen, analyze, and/or synthesize and organize the results of the search in a form appropriate for delivery to the client.
Communication:	To display and convey the results of the search to the client in a style appropriate for his use in finding a solution(s) to the problem.
Evaluation:	To assess the performance of the major EIC processes and overall role and the operational effectiveness of the setting within the linkage system; reformulate based on evaluation, and make adjustments in processes and functions.

Knowledge, skills and affective behaviors in each process are presented in a sequential, modular configuration. Each one of these major processes is the focus of one module. In addition, there is an Introduction Module (describing the emerging role and functional contexts of the EIC) and a Simulation Module (providing an orientation to the skills involved in each process).

Instructional activities in each module have three phases: (1) preparation, (2) learning, and (3) application. Throughout the training, participants learn and apply EIC process skills through large- and small-group, as well as individual, activities. These include role-playing, problem-solving, simulation, and decision-making exercises.

The EIC materials are one example of materials developed outside of our project which attend directly to the DD&E competence defined in our training system. The plan is to systematically incorporate these and similar type materials into the system. The EIC materials in the learning team form are adapted and incorporated in the Functional Competence Training Program as follows. Three instructional modules will be included: Orientation to the Role of the Eductional Inforamtion Consultant, Negotiation/Communication, and Retrieval/Transformation .

The Orientation Module describes the emerging role and functional contexts of the EIC, and provides a simulation of the process of the EIC role. The Negotiation/Communication Module attends to skills needed to define specifically an information problem and to convey the results of an information search. The Retrieval/Transformation Module attends to skills needed to secure R&D information and to organize the results of that search into an "actionable" format.

These modules were formed by combining existing modules from the EIC training. The learning exercises used in these modules are identical to those in the validated Course/Institute operational form of this package.[3]

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[3] For a more detailed account see B. Banathy, et al. The Educational Information Consultant: Skills in Disseminating Educational Inforamtion, A report on the development and operational validation of three alternative forms of a transportable instructional system. Final Report. San Francisco, Calif.: Far West Laboratory for Educational Research and Development, December, 1972. U.S. Office of Educational Contract OEC-0-71-3950(519).

However, the content added to bring the materials into the self-instructional format of the learning team form is being revised on the basis of the findings of the preliminary main field test of that form. This revision process is over half-completed and the materials will be ready for operational validation in the DD&E system by May 31. The competences related to each of these modules have been specified by level. The existing assessment instruments will need only minor modifications to bring them into the format of the DD&E system,

At this time the three modules constitute the ninth series of the program. This is a convenient solution for accounting purposes. However, we are considering the eventual integration of those modules into the Information/Data Series in that competences attended to in these modules are relevant to those which the Information/Data Series were based.

A summary of evaluation. The developers adopted the standard that for the instructional system to be declared effective, 90% or more of the trainees would complete the training, producing an information package usable by a client for application to a real-life information problem. When assessed for quality, 90% of the trainee-produced information packages would be rated at a level of 2.0 (Basic Skill) or above, on a 4.0 scale. Additionally, 50% of the packages would be rated at the level of 3.0 (Proficient) or 4.0 (High Proficiency). The course form was tested at four sites with a total of 67 trainees. The institute form was tested at eight sites, with 51 trainees divided among 13 teams.

Ratings of the trainee-produced information packages revealed that of both the course and institute participants, 97% did complete the training and achieve the Basic Skill level of competence. Moreover, 74% of the course participants and 65% of the institute participants, completed information packages that were scored at a "Proficient" or "High Proficiency" skill level.

The trainees' reaction to participation in the training was highly favorable. For example, 86% of the course and institute participants described the training as "very valuable." Trainees further reported that the value of the EIC training compared very favorably with that received in other courses and recommended highly that others take the training.

Since performance standards set for knowledge and skill objectives were met at seven of the eight operational field test sites and high affective ratings were given the training by both trainees and instructional managers, the training can be said to be effective.

These field tests also indicated, for the course and institute forms, that the materials are sufficient to enable instructional managers with varying backgrounds and experience to effectively administer the training and achieve the standards. Thus, these forms of the training package may be said to be fully operational and transportable.

A generally low completion rate for the learning team form revealed that this form cannot yet be said to be operational, and that further development of this form is necessary. A revision of this form is now under way.

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ANNUAL REPORT

TI 73

Contract No. OEG-0-71-1194

DESIGN OF A FUNCTIONAL COMPETENCE TRAINING PROGRAM FOR DEVELOPMENT, DISSEMINATION AND EVALUATION PERSONNEL AT THE ENTRY PROFESSIONAL LEVEL IN EDUCATION

Paul D. Hood
Bela H. Banathy

ATTACHMENT ONE

APPROACH TO COMPETENCE ASSESSMENT

January 31, 1973

HE 003 780

The research reported herein was performed pursuant to a contract with the National Institute of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to freely express their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official National Institute of Education position or policy.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

National Institute of Education

Researcher Training Task Force

ATTACHMENT ONE

Competence Assessment

This attachment contains a description of the sequence of assessment and evaluation steps that will be taken in conjunction with the certification of a competence set. Prototype forms of the competence assessment instruments for Module 4.2 (Attachment Two) are included to illustrate the type of instruments which will be used.

A. DESCRIPTION OF THE ASSESSMENT SEQUENCE

In Figure 1 we indicate the process by which members of the triad (Instructional Resource Manager, trainee, and work supervisor) may use the assessment instruments for certifying competence. There are two approaches to the certification of competence which may be used: the "challenge" method and the instruction and application method.

The following steps outline an approximation of a plan for using competence assessment certification instruments:

Step 1. For each competence subset relevant to a module there is a battery of assessment instruments which members of the triad may use in determining trainee competence. The first step is selection of a competence subset by members of the triad. This selection is usually dictated by the job requirements of the Engineered Internship, although a trainee may "challenge" any subset in which he/she feels he/she has already attained a degree of proficiency.

FEB 6 REC'D

Step 2. The trainee completes a Student Self-Rating Scale indicating his/her perception of his/her own proficiency in the competence elements included in the selected competence subset. The trainee also completes the Job Knowledge Test.

Step 3. The trainee's work supervisor completes the Supervisor's Rating Scale which indicates his/her perception of the trainee's level of proficiency on the relevant competence subset. Steps 2 and 3 constitute a "pre-test".

Step 4. Based upon results on the Student Self-Rating Scale, the Supervisor's Rating Scale and the Job Knowledge Test, the triad makes a decision regarding whether the trainee is to (1) "challenge" the competence subset or (2) proceed through the instruction and application phase of the program. If the trainee elects to challenge the module, he/she proceeds to Step 5, otherwise trainee proceeds to Step 7.

Step 5. The trainee presents evidence of past performance in the competence subset. This may be in the form of products, reports, exhibits, testimony of previous supervisors, etc. If this evidence is sufficient, Step 6 follows; if it is insufficient, Step 7 follows.

Step 6. If the trainee has products indicating his/her past performance they may be judged by use of the Product Rating Scale.

Step 7. If the trainee has no products which demonstrate past experience, or if the products do not meet the minimum criteria as judged by the Product Rating Scale (Step 6) he/she proceeds with the Simulation Exercise.

Step 8. Satisfactory performance in Steps 6 (Product Rating) or Step 7 (Simulation Exercise) and 2 Job Knowledge, ad judged by the Instructional Resource Manager, results in the trainee being certified on the relevant competence elements in the subset (Step 15). If performance is not satisfactory on the Job Knowledge Test, the trainee proceeds to Step 9 (module use). Unsatisfactory performance on the Job Knowledge Test and the Simulation Exercise leads to assignment for both module use (Step 9) and application experience (Step 11).

Step 9. The trainee works through the assigned instructional modules relevant to the competence subset.

Step 10. On completion of the module or modules and application experience (Engineered Internship) if both are undertaken, the trainee takes the post-module Job Knowledge Test. Failure on this test will result in recycle to Step 9.

Step 11. If the trainee has failed the pre-Simulation Exercise (Step 7), he/she will undertake an application experience (e.g., Engineered Internship) in conjunction with his use of the instructional module (Step 9). On completion of the application, the trainee may have produced a product. If so, he/she proceeds to Step 12 (Product Rating), otherwise to Step 13 (Post Training Simulation Test).

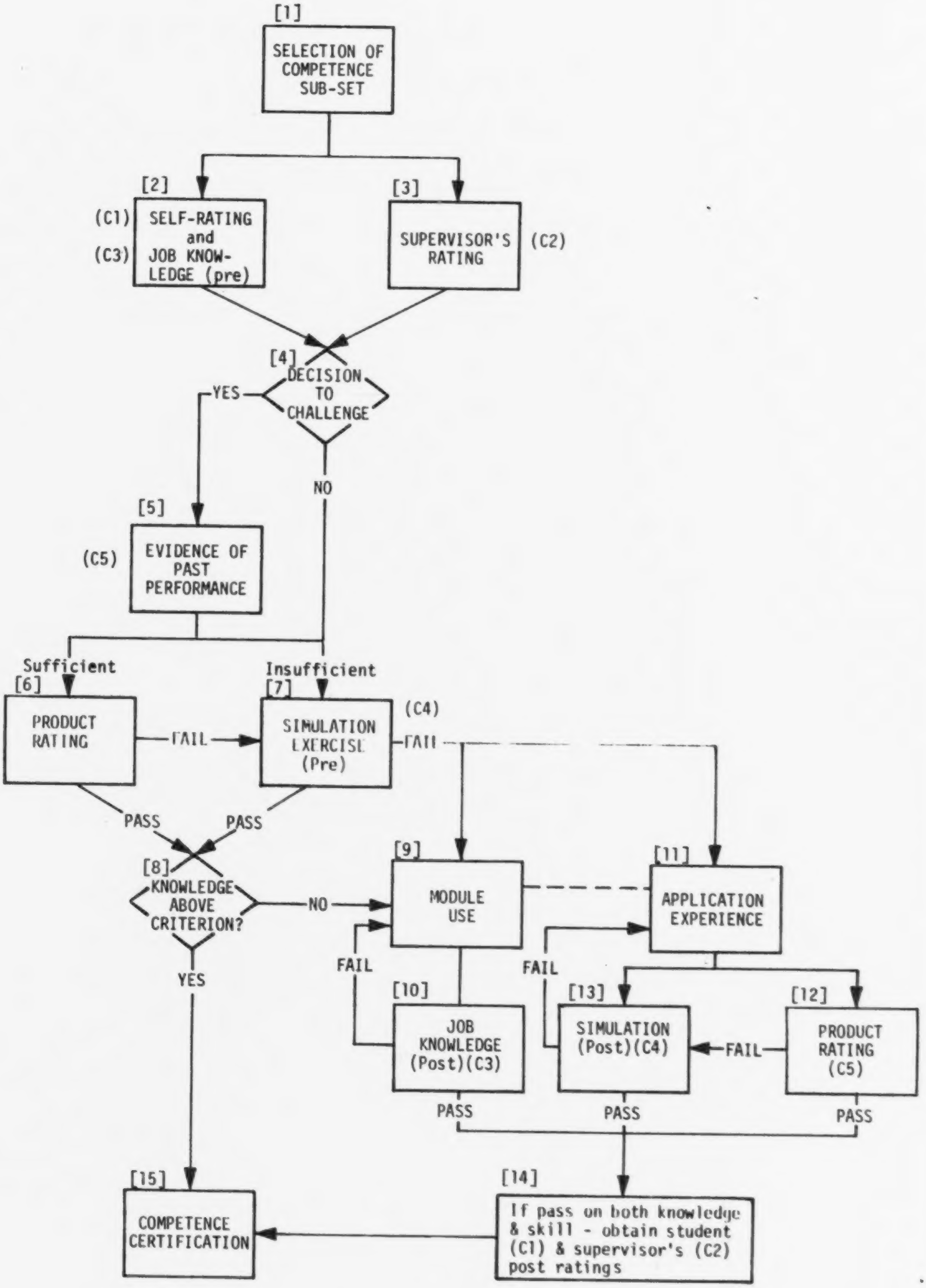
Step 12. If the product is judged as passing the trainee proceeds to Step 14. If the product is judged as not passing, he/she proceeds to Step 13. (Note: It is reasonable to expect that the trainee may not have been able to produce a satisfactory product for reasons beyond his/her control, hence provision for simulation testing is provided).

Step 13. The trainee performs a Simulation Exercise. If he/she fails, trainee recycles to Step 11 for further application experience. If he/she passes, the trainee moves to Step 14.

Step 14. The certification of appropriate levels of competence on the relevant competence elements is made by the Instructional Resource Manager based on a synthesis of results from all assessment instruments and consideration of: the Student Log (a log book in which the trainee regularly notes his learning and application activities); the work supervisor's record of student activities (notes on his/her observations of the trainee's application experiences); and the Instructional Resource Manager's notes on the trainee's activities and progress and the transactions of the triad. At this point, the trainee and the work supervisor complete the post-training rating forms.

Step 15. The trainee receives competency certification.

FIGURE 1


[1]
SELECTION OF COMPETENCE SUB-SET
[2]
(C1)
(C3)
SELF-RATING and JOB KNOW-LEDGE (pre)
[3]
SUPERVISOR'S RATING
(C2)
[4]
DECISION TO CHALLENGE
YES
NO
[5]
(C5)
EVIDENCE OF PAST PERFORMANCE
Sufficient
Insufficient
[6]
PRODUCT RATING
FAIL
[7]
SIMULATION EXERCISE (Pre)
(C4)
FAIL
PASS
PASS
[8]
KNOWLEDGE ABOVE CRITERION?
NO
YES
[9]
MODULE USE
[11]
APPLICATION EXPERIENCE
FAIL
FAIL
[10]
JOB KNOWLEDGE (Post)(C3)
[13]
SIMULATION (Post)(C4)
FAIL
[12]
PRODUCT RATING (C5)
PASS
PASS
PASS
[15]
COMPETENCE CERTIFICATION
[14]
If pass on both knowledge & skill - obtain student (C1) & supervisor's (C2) post ratings

B. ASSESSMENT INSTRUMENTS RELEVANT TO MODULE 4.2 "ENGINEERING A COMPONENT" (PROTOTYPE FORMS)

The instruments which comprise the Competence Assessment battery are described in the body of the report on page 24. The enclosed items are provided as examples of the measurement instruments which will make up the Competence Assessment battery for Module 4.2. Various forms are being developed before conducting prototype tests.

Contents

1. Trainee's Self-Rating Scale. Two different forms, C-1, Style A, and C-1, Style B, of the Trainee's Self-Rating Scale are presented.

2. Supervisor's Rating Scale. One form, C-2, of this instrument is presented here.

3. Job Knowledge Test. One form, C-3, of the Job Knowledge Test is presented. Other forms under development include multiple-choice and true-false types. We are aware of the difficulty of obtaining reliable results with true-false items, but may attempt to determine the usefulness of this type of test as a preliminary screening device because of its ease of administration.

4. Simulation Exercise. Form C-4 is an example of a simulation exercise which requires the trainee to demonstrate his/her competence through application in a simulated work situation. The exercise presented here should be completed in four to five hours. A grading guide for this exercise is currently under development.

5. Product Rating Scale. Two forms, C-4, Style A and C-5,Style B, of this instrument are presented. These scales permit rating of student products. Additional forms are being developed for preliminary testing.

TRAINEE'S SELF-RATING SCALE
FORM C-1 STYLE A
Prototype Form

Distribution: TRAINEE
IRM
SUPERVISOR
FWL

TO BE COMPLETED BY TRAINEE

TRAINEE'S SELF-RATING SCALE

MODULE 4.2 ENGINEERING A COMPONENT

Date__________________

Trainee________________

Supervisor______________

1. Have you had one or more courses in developing educational products?

   Yes ___ No ___ If yes, describe:

2. Are you familiar with the processes involved in developing educational products?

   Yes ___ No ___ If yes, describe:

3. How much experience have you had in specifying the purpose of a given component (a section or part of an instructional program or product)?

   Considerable ___ Some ___ Little ___ None___

   Describe:

4. How much experience have you had in specifying performance outcomes or objectives (telling what the learner will be able to do at the end of his involvement with the component) for a component?

   Considerable ___ Some ___ Little ___ None ___

   Describe:

5. How much experience have you had in specifying constraints and resources (laying out tasks, working out time, money, and personnel schedules, etc.) for a component?

   Considerable ___ Some ___ Little___ None___

   Describe:

6. How much experience have you had in selecting instructional content (defining what content should be provided to the student so that he can achieve the performance outcomes) for a component?

   Considerable___ Some___ Little___ None___

   Describe:

7. How much experience have you had in organizing and sequencing instructional content of a component in order to facilitate student learning?

Considerable___ Some___ Little___ None___

Describe:

8. How much experience have you had in selecting methods and media for presenting instructional content which will facilitate student learning?

Considerable___ Some___ Little___ None___

Describe:

9. How much experience have you had in preparing tests and measures to assess student performance?

Considerable___ Some___ Little___ None___

Describe:

10. How much experience have you had in evaluating the effectiveness of a component or product in meeting performance outcomes?

Considerable___ Some___ Little___ None___

Describe:

11. How much experience have you had in modifying a component or product to improve its effectiveness in meeting performance outcomes?

Considerable ___ Some___ Little___ None___

Describe:

TRAINEE SELF-RATING SCALE
FORM C-1 STYLE B

Prototype Form

Distribution: TRAINEE
IRM
SUPERVISOR
FWL

TO BE COMPLETED BY TRAINEE

TRAINEE'S SELF-RATING

MODULE 4.2 "Engineering a Component"

Date________________

Trainee______________

Supervisor___________

The list on the next page contains statements of competences involved in engineering a component of an instructional product. We want to determine how proficient you think you are in each of these competences at this time. Read each competence statement and check the column at the right that corresponds most closely to your estimate of your ability. Seven degrees of proficiency are given. These are listed, with interpretations, below.

Degree of proficiency	Interpretation
1. No experience	I have had no experience with this task.
2. Read or observed only	I have read about or seen this task performed, but really don't understand it very well.
3. Understand purpose	I have studied this task or seen it performed enough to understand its purpose or function, but I haven't ever tried to complete it.
4. Some hand-on-experience	I have had enough hands-on experience to be able to perform it with close supervision or with detailed step-by-step instructions.
5. Need only general supervision or instruction	I have enough experience in performing this task to be able to do it if given enough time and some general supervision or general instructions.
6. Can perform satisfactorily alone	I can perform this task quite satisfactorily without supervision or job aids.
7. Highly proficient	I have extensive experience with this task, and can perform it quickly, efficiently, and do a top quality job.

If you are given a description of the instructional system showing the relationship of the component (section or part of the product) in question to the instructional system, and given appropriate instructions, job aids, and supervision, how well do you think you can perform the tasks listed on the following page?

TRAINEE's SELF-RATING

MODULE 4.2 "Engineering a Component"

p. 2

	Self-Rating						
Tasks	No experience 1	Read or observed only 2	Understand purpose 3	Some hands-on experience 4	Need only general supervision or instruction 5	Can perform satisfactorily alone 6	Highly proficient 7
1. Specify the purpose of a given component of the program (this includes a statement of the problem which gives a diagnosis of need and the proposed general solutions to the need).							
2. Specify the performance outcomes or objectives (tell what the learner will be able to do at the end of his involvement with the component).							
3. Specify constraints and resources (lay out tasks, time money and personnel schedules, which spell out how we expend our resources and for what).							
4. Select instructional content (define what content should be provided to the student so that he can achieve the performance outcomes).							
5. Organize and sequence instructional content of the component to facilitate student learning.							
6. Select methods and media for presenting instructional content which will facilitate student learning.							
7. Prepare tests and measures to assess student performance.							
8. Evaluate effectiveness of component or product in meeting performance outcomes.							
9. Modify the component or product to improve its effectiveness in meeting performance outcomes.							

SUPERVISOR'S RATING SCALE
FORM C-2
Prototype Form

Distribution: SUPERVISOR
IRM
FWL

TO BE COMPLETED BY SUPERVISOR

SUPERVISOR'S RATING SCALE

MODULE 4.2 "Engineering a Component"

Date________________

Trainee________________

Supervisor______________

The list on the next page contains statements of competences involved in engineering a component of an instructional product. We want to determine how proficient you think the above trainee is in each of these competences at this time. Read each competence statement and check the column at the right that corresponds most closely to your estimate of his or her ability. Seven degrees of proficiency are given. These are listed, with interpretations, below.

Degree of proficiency	Interpretation
1. No experience	He has not had experience with this task.
2. Read or observed only	He has read about or seen this task performed, but really doesn't understand it very well.
3. Understand purpose	He has studied this task or seen it performed enough to understand its purpose or function, but hasn't ever tried to complete it.
4. Some hand-on-experience	He has had enough hands-on experience to be able to perform it with close supervision or detailed step-by-step instructions.
5. Need only general supervision or instruction	He has enough experience in performing this task to be able to do it if given enough time and some general supervision or general instructions.
6. Can perform satisfactorily alone	He can perform this task quite satisfactorily without supervision or job aids.
7. Highly proficient	He has extensive experience with this task, and can perform it quickly, efficiently, and do a top quality job.

If the trainee is given a description of the instructional system showing the relationship of the component (section or part of the product) in question to the instructional system, and given appropriate instructions, job aids, and supervision, how well do you think he or she can perform the tasks listed on the following page?

SUPERVISOR'S RATING SCALE
MODULE 4.2 "Engineering a Component"

p. 2

	Rating						
	No experience	Read or observed only	Understand purpose	Some hands-on experience	Need only general supervision or instruction	Can perform satisfactorily alone	Highly proficient
Tasks	1	2	3	4	5	6	7
1. Specify the purpose of a given component of the program (this includes a statement of the problem which gives a diagnosis of need and the proposed general solutions to the need).							
2. Specify the performance outcomes or objectives (tell what the learner will be able to do at the end of his involvement with the component).							
3. Specify constraints and resources (lay out tasks, time money and personnel schedules, which spell out how we expend our resources and for what).							
4. Select instructional content (define what content should be provided to the student so that he can achieve the performance outcomes).							
5. Organize and sequence instructional content of the component to facilitate student learning.							
6. Select methods and media for presenting instructional content which will facilitate student learning.							
7. Prepare tests and measures to assess student performance.							
8. Evaluate effectiveness of component or product in meeting performance outcomes.							
9. Modify the component or product to improve its effectiveness in meeting performance outcomes.							

JOB KNOWLEDGE TEST
FORM C-3
Prototype Form

Distribution: IRM
FWL

TO BE COMPLETED BY TRAINEE

JOB KNOWLEDGE TEST

MODULE 4.2 ENGINEERING A COMPONENT

Date_______________

Trainee_______________

IRM _______________

This test has been designed to determine your understanding and general knowledge of the tasks related to developing an instructional component or product. Your responses will be compared to those of other students with experiences and backgrounds similar to yours.

1. Define and discuss the importance of each of the following basic steps of instructional system design:
    a. stating problem or need and general solution
    b. formulating performance outcomes or objectives
    c. aligning constraints and resources
    d. selecting instructional content
    e. sequencing instructional content
    f. determining instructional strategy
    g. conducting summative evaluation of student performance
    h. conducting formative evaluation of component or product

2. Define and discuss the relationships of the following elements used in developing a component:
    a. performance outcomes
    b. pretest
    c. learning experiences
    d. posttest

3. Define the following terms:
    a. instructional process
    b. instructional product
    c. instructional system

SIMULATION EXERCISE
FORM C-4
Prototype Form

Distribution: IRM
FWL

TO BE PERFORMED BY TRAINEE

SIMULATION EXERCISE

MODULE 4.2 ENGINEERING A COMPONENT

Instructions to the IRM

We are asking you to judge the instructional product component that the student produces. The performance outcome we expect and the explicit criteria by which you should judge the product are included in the attached exercise.

In addition, we ask you to help the student select another product to work on if he is dissatisfied with this one. We anticipate that you will be able to apply the same criteria we have listed to the component or product the student chooses.

Instructions to Students

In this exercise we are asking you to create an instructional product component from the information which we will give you. Refer to Episode II of the module if you need further guidance.

We also realize that in this exercise we are presenting you with an artificial situation. It would be highly unusual for you to work alone if you were actually engineering a component. Instead, you would have the chance to discuss your ideas with many people. However this exercise has an important purpose, which outweighs the artificiality of the situation. You should have the chance to synthesize the concepts and techniques you have learned by applying them to the solution of a specific problem. In short, you should have the chance to produce an actual piece of instruction.

The minimum we ask is that you produce the component described, although you can do more if you wish. You may choose your own component, if you so desire. If you do choose to work on another component, be sure and discuss it with your IRM before you begin work.

Required Performance Outcome

Given the following problem statement, and the table of media costs and time requirements, you should be able to produce a prototype version of an instructional product component from the information given you about (a) performance outcomes, (b) instructional content, and (c) constraints.

Criteria defining an acceptable product:

1. It must be completed within four to six hours of the starting time.
2. It must be developed within the budget allocated.
3. It must include, whether separately or in combination:
    a. performance outcomes

   b. pretest
   c. learning experiences
   d. post-test

4. It must be accompanied by a table showing time and money devoted to each task.

5. It must be accompanied by a table showing the medium or media, and learning structure or structures you used in the component.

6. It must be a complete component, something that is usable as a means of learning.

Your product will not be evaluated under any other criteria.

Your product must meet all criteria to be acceptable.

Problem Statement

One of the basic problems in preschool education is that of teaching children age 3-5 to discriminate between basic shapes (circle, square, rectangle, and triangle) which are found in the world around them. These shapes appear repeatedly in objects encountered every day, however many children are not only unable to discriminate among them, but cannot identify the various shapes by name. Since children enjoy playing, it has been decided to develop an instructional component which will teach children to discriminate among shapes by means of blocks or other games.

COMPONENT DESIGN PROJECTS

Purpose: To engineer a component that will satisfy the requirements of the Problem Statement.

Your assignment is to:

1. Specify the performance outcomes or objectives (tell what the learner will be able to do at the end of his involvement with the component).
2. Specify constraints and resources (lay out tasks, time, money and personnel schedules, etc. which spell out how we expend our resources and for what).
3. Select or develop instructional content (define what content should be provided to the student so he can achieve the performance outcomes).
4. Organize and sequence instructional content of the component to faci- student learning.
5. Select methods and media for presenting instructional content which will facilitate student learning.
6. Prepare tests and measures to assess student performance.
7. Describe how you would evaluate the effectiveness of the component or product in meeting performance outcomes.
8. Modify the component or product to improve its effectiveness in meeting performance outcomes.

Constraints:

User related--

1. Must be usable by children age 3-5.
2. Must be usable in a peer and teacher instructional setting.

Production related--

1. Only four hours of your time is available for development.
2. Funds available for development of this component total $400.00. This requires you to allocate your funds wisely for development, reproduction, and purchase of materials.
3. The estimated number of users of the product will be ten.

TABLE OF MEDIA COSTS AND TIME

Mode of Presentation	Number of hours of design time to produce 1 minute of instructional time	Cost per instructional minute	Cost of your time per design hour
1. TAPE/SLIDE	1	$100	$15
2. FILM	10	$1000	$15
3. COMPUTER ASSISTED INSTRUCTION	10	$750	$15
4. AUDIO CASSETTE	1	$50	$15
5. PROGRAMMED INSTRUCTIONAL BOOKLET	1	$20	$15
6. NARRATIVE BOOKLET	1/2	$20	$15
7. LIVE INSTRUCTOR (LECTURE-DEMONSTRATION)	1	$ 2	$15

Explanation of Table of Media Costs and Time:

Mode of Presentation

Seven modes of presentation are offered for your use. You must select one or a combination of several from this list. You may not use any other mode of presentation. The following assumptions are of necessity also in effect:

1. You must assume that for Modes 1, 2, 3, and 4 an outside consultant or media specialist must be brought in (at your expense) to perform the design work.
2. Assume that you are capable without any outside assistance of performing the design work on Modes 5, 6, and 7.

Number of hours of design time to produce one minute of instructional time.

To compute this cost, complete the following steps:

1. Determine the number of instructional minutes required for the media in the final product.
2. Multiply the number of instructional minutes by the Cost Per Instructional Minute.

Cost of your time per design hour

Your design time must be added to the total cost of the development process. This means that you *must* keep a record of the number of hours you spend working on your component and multiply the total by the constant rate per hour of $15.

PRODUCT RATING SCALE
FORM C-5 STYLE A
Prototype Form

Distribution: IRM
TRAINEE

TO BE COMPLETED BY IRM

PRODUCT RATING SCALE
MODULE 4.2 ENGINEERING A COMPONENT

Trainee____________________

IRM____________________

This questionnaire may be used to evaluate any instructional product developed either as the result of taking module 4.2 or from some prior developmental experience. The questionnaire may be used either as a means of challenging the module or in conjunction with the end-of-module exercise.

1. What financial and personnel resources were available to support this development project?
2. a. Did you produce this product alone or as a member of a team?
   b. If a member of a team, describe your role and responsibilities.
3. Who was the intended audience?
4. In general, what steps did you go through in developing this product?
5. On what group was the product validated?
6. What were the results of the validation testing; or if you did not have the opportunity to validate your product, describe how you would go about doing that.
7. What did you do to insure learning took place, i.e., that students met your objectives?
8. Would you please show me the pre-test, objectives, and post-test?
9. Why did you select this particular medium and instructional strategy? (This response should relate to the response to question 3.)
10. If you considered alternative approaches or strategies, at what point did you consider them and what were they?
11. How did you decide on this particular sequence of instruction?

PRODUCT RATING SCALE
FORM C-5 STYLE B
Prototype Form

Distribution: IRM
TRAINEE
FWL

TO BE COMPLETED BY IRM

PRODUCT RATING SCALE
Module 4.2 "Engineering a Component"

Trainee____________________

IRM____________________

Listed below are some characteristics of an instructional product. Please rate the product under consideration on each of these characteristics by checking the appropriate column.

Characteristics	Yes	No
1. Objectives: (a) are measureable		
(b) are in performance terms		
(c) include criteria		
2. Intended audience is described		
3. Medium is appropriate		
4. Instructional strategy is appropriate		
5. Validation data indicate measureable gain		
6. Pre-and post-tests are similar (ie. same test, equivalent forms, etc.)		

	Not Acceptable	Marginal	Satisfactory	More than Satisfactory	Excellent
7. Visual Materials: (a) technical quality					
(b) contribution towards attainment of objectives					
(c) contribution to student motivation					
8. Audio Materials: (a) technical quality (audio defects, clarity of sound, etc.)					
(b) appropriate to target audience					
(c) interest level (not boring)					
9. Printed Materials: (a) technical quality					
(b) appropriate to target audience					
(c) interest level (not boring)					

PRODUCT RATING SCALE
Module 4.2 "Engineering a Component

Page 2

Trainee______________________________

IRM__________________________________

		Not Acceptable	Marginal	Satisfactory	More than Satisfactory	Excellent
10.	Instructions to User/Student: (a) comprehensiveness					
	(b) clarity					
	(c) appropriateness of level					
11.	Organization/Sequence					
12.	Overall Quality					

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ANNUAL REPORT

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Contract No. OEG-0-71-1194

DESIGN OF A FUNCTIONAL COMPETENCE TRAINING PROGRAM FOR DEVELOPMENT, DISSEMINATION AND EVALUATION PERSONNEL AT THE ENTRY PROFESSIONAL LEVEL IN EDUCATION

Paul D. Hood
Bela H. Banathy

ATTACHMENT TWO

PROGRAM OF INSTRUCTION

January 31, 1973

HE 003 780

The research reported herein was performed pursuant to a contract with the National Institute of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to freely express their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official National Institute of Education position or policy.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

National Institute of Education

Researcher Training Task Force

ATTACHMENT TWO

Introduction

This attachment describes the content and format of all modules to be developed by August, 1974. The general structure of all modules is specified in the Module Developer's Guide. Module 4.2 (Attachment Two) is presented as an example. The module descriptions given here are in draft form. Also, where modules are undergoing major revision or redesign, the description of content is summarized as planned at this time.

Wherever appropriate to or required by the learning situation, special instructional strategies will be used in the modules. These will include simulations and other special exercises, role-playing, aural and visual mediation, small-team interations, problem solving exercises, and broad use of related texts and journal articles.

For each module, a set of competence assessment instruments is being developed. At present, the battery of test instruments consists of the following devices:

1. Student Self-rating Scale
2. Supervisor Rating Scale
3. Job Knowledge Test
4. Simulation Exercise
5. Product Rating Scale

These instruments are described in detail in the Scope of Work Report. Part Two: Product Development, page 24.

FEB 6 REC'D

LIST OF DD&E INSTRUCTIONAL MODULES

0.0 Overview of DD&E

1.0 Planning and Design
1.1 The Specification of Expected Outcomes
1.2 Consideration of Alternatives
1.3 Planning for Development
1.4 Planning for Evaluation
1.5 Planning for Dissemination/Marketing
1.6 Introduction to Component Design

2.0 Information/Data Collection and Organization
2.1 Orientation to Collecting and Organizing DD&E Information and Data
2.2 Observing and Interviewing
2.3 Data Management
2.4 Data Analysis
2.5 The Retrieval of Information Using Bibliographic Sources
2.6 The Retrieval of Information Using Special Sources

3.0 Communication Skills
3.1 Listening and Speaking
3.2 Technical Writing: Guidance and Instructional Materials
3.3 Technical Writing: Work Support Documents
3.4 Technical Writing: Formal Publications

4.0 Developmental Engineering
4.1 Establishing Developmental Objectives
4.2 Engineering a Component
4.3 Integrating Product Components
4.4 Tryout and Revision
4.5 Special Problems in Development

5.0 Evaluation
5.1 The Role of Evaluation in DD&E
5.2 Test and Measures
5.3 Development of Instruments
5.4 Field Tests
5.5 Evaluation Problems

6.0 Analysis and Definition
6.1 Problem Formulation
6.2 Problem Analysis

7.0 Dissemination and Marketing
7.1 Design and Evaluation of Dissemination/Marketing Models
7.2 Working with the Consumer
7.3 Installing Educational Products

8.0 Management
8.1 Management of Personnel
8.2 Management of Program Operations

9.0 The Educational Information Consultant
9.1 Orientation
9.2 Negotiation and Communication
9.3 Retrieval and Transformation

MODULE: 0.0
Overview of DD&E

DESCRIPTION OF CONTENT

The Overview module is designed to provide a general orientation to research, development, dissemination and evaluation in education and other social science areas. The content of the module will be derived from a carefully selected set of case materials describing actual RDD&E programs and projects. The student will be introduced to basic terms and concepts by: considering the R & D process as a general problem-solving approach to educational and social problems; distinguishing the functions of research, development, evaluation and dissemination; being introduced to their nested character, e.g., the developer draws on a knowledge base provided by basic and applied research, and may in practice contribute to the applied research and technology knowledge bases. From the beginning of development, and at nearly every step along the way, evaluation is required, design and development must be concerned with dissemination and marketing requirements, etc. Following this exposure to the nested, interactive, and iterative character of RDD&E, the Orientation module will focus successively on each of the five context courses: (a) Analysis and Problem Definition, (b) Planning and Design, (c) Developmental Engineering, (d) Evaluation and (e) Dissemination/Marketing. This will be accomplished, in part, by a five part case study of a single development.

FORMAT

The structure of the module will be similar to that of Module 4.2 (see Appendix Two). Film strips and audio or videotape recordings of visits to development agencies and interviews with DD&E personnel, as well as examination of the materials and by-products of DD&E activity will be provided as adjuncts to the written case materials. The entire course will be basically a single, linear program with exercises requiring student response and self evaluation introduced at frequent intervals; however, there will be some alternative sets of exercises and protocols (case materials) so that the level of challenge to learning can be adjusted to the ability, experience and interest of the student.

1. Planning and Design

MODULE: 1.1
The Specification of Expected Outcomes

OVERVIEW:

This module concerns the first overall stages of planning. The parts of a problem statement are defined, and the procedures for generating the parts are discussed. The student is asked to recognize missing elements in a problem statement: to plan, collect and synthesize the necessary information; and on the basis of the problem and goal statements, write performance outcomes.

OBJECTIVES:

1. Review a problem analysis statement, and identify missing critical design and development elements.
   a. Identify the information given and missing in the six areas to be covered in a problem analysis statement.
2. Become oriented to sources and processes of information collection to complete a problem statement.
3. Discriminate between goal statements and performance outcomes.
4. Based on a given set of information, write a problem statement.

DESCRIPTION OF CONTENT:

The module begins with an introduction that first explains the "downward spiral" involved in the process of planning in general. It then discusses the development of a problem statement in terms of six categories that must be applied. There then follows an example of a problem statement, specifically the proposal for developing a Parent-Child Education Component of an Early Childhood Education Program. The six parts of a typical problem statement are then broken down and described individually:

1. Identification of problem or need
2. Nature and extent of the problem
3. Reasons for the existence of the problem
4. Past attempts to solve the problem
5. Potential solutions, and
6. Extent of interest in the problem solution.

With each description of each part of the problem statement, there are student exercises which ask the student to go through and describe each part of the problem analysis statement for the Parent-Child Education Component of an Early Childhood Education Program (the Toy-Lending Library). This is done on a form entitled "Analysis of Information in a Problem Analysis Statement" that appears after the first student activity in the module. Completion of this form comprises the first six student activities Student Activity #7 is concerned with the use of A Guide to Reference Books by Constance M. Winchell. Student Activity #8 provides practice in locating sources in the library. Students are given a list of frequently used sources and are asked to locate five of them in the library and write short descriptive paragraphs on each. In addition, they are asked to visit their college library and determine the availability of courses of study and curriculum guides. Following Student Activity #8 are short descriptions of various methods for obtaining information including interviews, questionnaires, observation, surveys, and letters of inquiry. Student Activity #9 involves reading a piece (included in the module) about the Chinatown-North Beach Community English Language Center, and completing an Analysis of Information Form. Following that activity is an explanation of the differences between Goals and Performance Outcomes. The final student activity involves reading from two outside sources: AERA Monograph Series on Curriculum Evaluation, Instructional Objectives, and Robert Mager's Preparing Instructional Objectives. The student is asked to complete the exercises at the end of Mager's book.

END-OF-MODULE ASSESSMENT TECHNIQUE:

Students are asked to write a problem analysis statement regarding instructional methods and materials for the development of a time sense in children. They are provided with a list of references to aid them in this task. They are also asked to write a goal statement and performance outcomes for time sense instruction.

COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:		LEVEL OF COMPETENCE
A-1.1	Identifying the Problem Area	Familiarization
A-2.1	Annotating Resource Information	Familiarization
A-2.2	Assessing the Problem Area	Familiarization
A-4.1	Specifying the Desired Outcomes	Familiarization
A-4.2	Writing the Problem Statement	Familiarization

1. Planning and Design

MODULE: 1.2
The Consideration of Alternatives

OVERVIEW:

This module concerns itself with problem solving and the problems that arise which may influence the outcomes. In order to avoid mistakes, certain patterns in this operation must be followed. These patterns ensure every avenue is explored so that the developer may resolve any discrepancies and solve his problems. These patterns will be described, labeled and defined, after which the student will assume the role as developer and practice his skills on actual problems.

OBJECTIVES:

1. Examine solutions to educational problems and determine whether to adopt or reject them, and to justify such decisions in terms of compatibility and feasibility.
2. Adapt or create solutions to educational problems and justify them in terms of compatibility and feasibility.
3. Write a summary statement that includes a recommendation as to whether to adopt, adapt, or create a solution of an educational problem and the rationale for his choice.

DESCRIPTION OF CONTENT:

Student Activity #1: The student is given a list of circumstances, constraints, resources affecting the problem. After solving the problem he will be asked to analyze the procedures and sequential thought processes.

Student Activity #2: Application of Terminology-Terms and concepts of objectives, restraints, resources and trade-offs are defined and illustrated by examples. The developer has choices of adoption, adaption and creation. Listed are activities used with each alternative: Adoption - "Taba's Social Studies Units." Adaption - A new edition of a book, television, etc. Creation - create your own approach, Mini-course and Parent/Child Toy Lending Library. The end result of using these approaches must answer the compatibility and feasibility of these experiences.

Student Activity #3: An actual problem which you as the developer will consider alternatives to a real educational problem. The Science Curriculum Improvement Study (SCIS) and reading through the ESEA Application "Adapting Science Materials for the Blind" should be read to get an overview of the problem. You are to consider one lesson, "Evidence of Interaction" for primary school age blind children.

The outside Reading used in the module is:

Interaction and Systems (SCIS) Teacher's Guide, Rand McNally Co.

END OF MODULE ASSESSMENT TECHNIQUE:

Students are asked to develop a science program for blind elementary children. Stress is on observation and manipulation of materials. Language skills also are developed.

COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:		LEVEL OF COMPETENCE
A-2.2	Assessing the Problem Area	Familiarization
B-2.1	Analyzing the Feasibility of Solutions	Familiarization
B-2.2	Analyzing the Compatibility of Solution with Problem	Familiarization

MODULE: 1.3
Planning for Development

OVERVIEW:

The purpose of this module is to provide the student with an orientation to some of the factors involved in planning an educational research and development project. The module will illustrate the basic steps that may be taken in planning for development, and will provide a general orientation to the PERT and PPBS approaches to project development.

OBJECTIVES:

I. Be able to prepare a detailed project description, with a:

   A. statement of purpose
   B. statement of project objective
   C. identification of the activities to be undertaken by target group
   D. identification of tasks to be undertaken by development team

II. Be able to structure the format of information concerning a detailed project description in such a way as to reflect the interdependencies and interrelationships of the tasks of the development team.

III. Be able to determine sequencing tasks by:

   A. describing how development team tasks are identified.
   B. describing the four approaches taken in sequencing necessary tasks.
   C. identifying, after examination of a flow chart,

      1. concurrently occurring tasks
      2. activity - preceding tasks
      3. activity - following tasks

   D. designing a simple flow chart from a list of development team tasks.

IV. Be able to estimate duration of tasks by:

   A. describing the difference between probabilistic and deterministic time elements.
   B. describing the procedures for obtaining probabilistic and deterministic time estimates.

C. defining and discussing

   1. the earliest time an event can occur
   2. the latest time an event can occur without

      a. delaying another event
      b. delaying total project time

   3. the concept of critical pathway
   4. the concept of free time and slack time

D. describing and discussing how to make time adjustments to reduce total project time.

V. To become competent at scheduling and the allocating of Resources by:

A. knowing the constraints inherent in all educational research and development projects.
B. being able to schedule an educational research and development project if given project tasks, time estimates, and resource allocations.
C. knowing the ways in which a schedule can be readjusted

   1. if total project time exceeds time available.
   2. if total costs exceed funds available.

VII. To be able to estimate costs and prepare budgets by:

A. discussing and describing how cost estimates are made.
B. describing the budget's purpose and the categorization of costs.
C. describing the difference between the "line item" budget and PERT and PPBS budget formats.

DESCRIPTION OF CONTENT:

In the module, "Planning for Development," the developer is instructed to first define a problem, next, to examine possible solutions and decide on one of them.

Once a particular solution to a problem is decided upon, the next step is to complete a project description which entails:

(1) preparing a statement of purpose,
(2) specifying the project objectives (including derived performance objectives),
(3) identifying the activities to be undertaken by the target group to insure successful performance and the meeting of specified objectives, and,
(4) identifying the tasks which must be undertaken by the development team to meet the objectives.

The "Statement of Purpose," it is stated, must define the goal and examine the scope of the project as well recognize the limits and constraints important to the projects completion. Student Activity #1, which follows "Preparing a Project Description," is the first of 5 such student activities designed to illustrate or elucidate for the student the five major subject areas of the module, which are "Designing a Planning System" (which contrasts the PERT and PPBS planning techniques, either of which help to determine the exact scope of the project, identify the work to be done, and estimate the length and cost), "Sequencing of Tasks," (emphasizing when the tasks identified in the project description must be accomplished, employing PERT networking techniques and the construction of a flow chart), "Estimating the Duration of Tasks," (dealing with the establishment of a time frame, the uses of deterministic and probablistic time estimates, and an introductory to Cook's 5 time reduction procedures) and "Scheduling and Allocation of Resources," (translating the development plan into a time table showing the calendar date for start and completion, and assigning resources necessary to accomplishing the planned activities.

The sixth and final step, "Estimate of Costs and Preparation of Budget" discusses what goes into estimating the amount of money needed to accomplish the goal of the project and such aspects of budget preparation as Direct Costs, Indirect Costs, Fixed Costs, and Variable Costs as exempified in a sample "line" budget contrasted with the same information shown in the PERT work breakdown structure form and the PPBS format, completing the final phase of the "Planning for Development" module.

The Readings in the module are:

Cook, Desmond L. Educational Project Management,
Charles E. Merrill Publishing Co. Columbus, Ohio, 1971

Banathy, Bela H., Ed. D. Instructional Systems,
Fearson Publishers. Palo Alto, California, 1968

Woodgate, H. S., Planning By Network,
Business Books Limited. London, 1967

Nuvick, David "Long-Range Planning Through Program Budgeting,"
Business Horizons, 1969

END-OF-MODULE ASSESSMENT TECHNIQUE:

Students are asked to solve a problem using the six steps described above.

COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:		LEVEL OF COMPETENCE
B-3.1	Establishing Developmental Objectives	Orientation
B-3.2	Preparing a Development Plan	Orientation
B-3.3	Determining Developmental Parameters	Orientation

1. Planning and Design

MODULE: 1.4
Planning For Evaluation

OVERVIEW:

This module is concerned with planning for the evaluation of DD&E projects. A sharp distinction is made between the "decision maker" and the "evaluation specialist" in the evaluation project. The importance of keeping these role distinctions clear is stressed in order that the evaluation is adequately designed and performed. After the formal presentation in the module the student is asked to develop a plan for evaluation of a project.

OBJECTIVES:

1. The student will list the procedures used in preparing a plan for evaluation.

2. The student will identify each type of evaluation information/Data presented and describe its purpose.

3. The student will design a schedule of evaluation activities that considers resources available and time constraints.

4. The student will list specific methods of quality control as presented in the module.

DESCRIPTION OF CONTENT:

This module begins by reviewing some of the meanings evaluation has for people with different points of view. It then gives a specific definition for use in DD&E.

Section I covers Decision Making and the areas requiring decisions in the context of evaluation planning. Then there follows a description of the roles of decision maker and evaluation specialist together with the relationship between client and evaluation agency.

Section II discusses guidelines for evaluation studies with emphasis on responsibility, reporting, policies, authority, constraints, and alternatives.

Section III discusses the functions of the evaluation team and the sequence in which these functions are generally performed. At the end is a review of the formal presentation.

Section IV is concerned with stages of evaluation and gives the student an opportunity to put into practice the concepts presented in the module in a plan for evaluation of a product.

Readings:

Stufflebeam, Daniel L. Excerpt from Evaluation as Englightenment for Decision Making

CALIPERS: Planning the Systems Approach to Field Testing Educational Products. The Southwest Educational Development Laboratory. Austin, Texas

Jones, Willard An Operational Model, "Problems and Considerations in Educational Development." Rocky Mountain Educational Laboratory.

END-OF-MODULE ASSESSMENT TECHNIQUE:

Student Activity #9 in the module asks the student to design a plan for evaluation of a product.

COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:		LEVEL OF COMPETENCE
C-3.1	Planning for Evaluation	Familiarization
C-3.2	Specifying Types of Evaluation Information/Data	Familiarization
C-3.3	Scheduling the Evaluation Activities	Familiarization
C-3.4	Specifying Methods of Quality Control	Familiarization

MODULE: 1.5
Planning For Dissemination

OVERVIEW:

Through the use of pertinent background reading, this module introduces the student to preliminary planning of a commercial market structure. Based on and using that structure, the emphasis of the module is the dissemination and marketing of non-standard educational materials. After substantial reading, the student is asked to 1) outline a dissemination/marketing plan and 2) write a rough draft of a legal agreement for manufacturing and distribution.

OBJECTIVES:

1. Market forecasting - judging size and type of product to be introduced.
2. Basic Market Study - assessing consumer needs, discovering the potential for any product of this type.
3. Product concept - analyzing its specific qualities.
4. Product objective - considering size, color, price, quantities, and other "dimensions."
5. Evaluation - finding out if the product will perform its planned functions (engineering).
6. Consumer reaction - preliminary soundings to prevent wasted effort.
7. Models or prototypes - why its best to test in a limited market.
8. Production - continuing consumer testing to perfect the product and eliminate defects.

DESCRIPTION OF CONTENT:

The module begins a simple analysis of marketing and dissemination in the introduction with the discussion of the unavailability of new educational materials, not limited to the textbook, and problems of marketing and dissemination of such new "products" ideas.

The first background reading delineates an educational product and provides a thorough breakdown of the various aspects of marketing consideration: the product, the target group, selection of distribution channels. Subsequent background readings provide basic information of the educational publishing industry; copywriting the production and the legal aspects of a publishing agreement.

The first student activity calls on the intern to condense this reading into a dissemination and marketing plan of his or her own design using a fact sheet, a summary, and a review chart included in the module. Tasks are to be divided between the "Agency" and "Publisher." Student Activity #2 asks the intern to outline the actions necessary to get a publisher/distributor commitment for the "American Government Information Unit," and draw up a rough legal agreement between a non-profit agency and a distributor.

END-OF-MODULE ASSESSMENT TECHNIQUE:

The Feedback section of the module includes for assessment, detailed references back to each of the two student activities and a breakdown of the competencies necessary for dissemination and marketing of products via questions about the same.

COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:		LEVEL OF COMPETENCE
C-4.3	Integrating Evaluation Components	Familiarization
D-3.1	Designing the Marketing Strategy	Familiarization
D-3.2	Designing a Marketing Component	Familiarization
D-3.3	Scheduling the Dissemination Activities	Familiarization

1. Planning and Design

MODULE: 1.6
Introduction to Component Design

OVERVIEW:

This module is based on creating a "frame work" for the examination of designs. Its purpose is to interrelate the artistic design with components and simple products, rather than systems, simply to provide a clear, relatively uncomplicated introduction to design. Producer, distributor and user are the three aspects of design consideration forming the base of the text. Part IV is devoted to comprehensive student activities.

OBJECTIVES:

1. For each of the producer, distributor, and user design considerations discussed in the module,
   a. Briefly describe or define it.
   b. Give an example of how failure to examine it can lead to a bad design, and
   c. Give an example of how careful attention to it can lead to a good design.
2. Show how producer, distributor, and user considerations may sometimes conflict.
3. Use the considerations to identify and explain potential weaknesses and strengths of proposed designs.
4. Given examples to demonstrate how the quality of design work, i.e. the attention given to producer, distributor, and user considerations, actually varies greatly among personnel and agencies in the R & D world.
5. Use the considerations to help you design a component to meet a given problem.

DESCRIPTION OF CONTENT:

The text is divided into the three basic components of design: producer, distributor, and user considerations. Part four is devoted to analyzing and applying design component ideas. An outline of the module is as follows:

1. Producer Considerations
    a. Materials
    Cost; target group application; maintenance; durability of product; distribution
    b. Methods
    Should be selected to meet quality, cost, personnel and time constraints
    c. State of the Technical Art
    Designs should be created to meet technological capacity
    d. Personnel Requirements
    Consider Personnel available
    Personnel to be hired: cost, training, availability?
    e. Availability of Critical Resources
    (self explanatory)
    f. Durability of the Product
    (duration)
    g. Evaluation
    Results of formative evaluation are used to improve the design before it is completed.
    h. Reproducibility
    One of a kind or mass produced
    "All-in-the-head" issue, or logical breakdown easily applicable to similar situations.
    i. Time
    That time available to produce the product
    j. Cost to Produce
    Control issue which effects almost all other considerations: materials, methods, personnel, evaluation

2. Distributor Considerations
    a. Transporting
    Actual means existent for transportation
    b. Installation
    Does cost of installation outweigh other product considerations
    c. Perishability
    Ideologic and physical
    d. Styling
    Enhances visual quality; adaptability for moving
    e. Interfacing
    Making component fit into already established distribution system
    f. Cost to Distribute

3. User Considerations
    a. Availability
    Easily accessible to user
    b. Ease of use
    Clear instructions, simple operating requirements, reliability
    c. Appropriateness to Target Group
    Reading level, prerequisite skills, taste, values, interests

d. Requirement for Supervisory Personnel
   Degree of instructor involvement
e. Maintenance
   Minimal maintenance
f. Possibility of Misuse
   Avoidance of uncalculated usage
g. Safety
   All materials and procedures should be safe
h. Time
   Effectiveness of product vs. time required in its usage
i. Cost to Use

PART IV COMPREHENSIVE STUDENT ACTIVITIES

No. 4 Alternative Designs for the Recruitment and Selection Component of a Training Program

The objective of this activity is to apply the three component considerations to the problem and determine their relevance to the design. Through this process, the student is expected to choose from three possible conclusions a correct solution for the cross training program described.

No. 5 Design for a Two-Way Communication System between Citizens and Public Officials

Actual student creativity is asked in this activity which calls for a component of a system to be designed by the student. The design should incorporate terms of the producer, distributor and users considerations.

No. 6 Considerations in the Design of a Drug Education Program

After reading the enclosed article, the student is asked to apply four aspects of good design as discussed previously in the module to the program. To select and describe two aspects of poor design and assess how a shortage of funds affected considerations.

No. 7 Some Design considerations in the Minicourse

The student is asked to list the design considerations being examined in the minicourse, and the mode of examination - such as research or review of literature.

END-OF-MODULE ASSESSMENT TECHNIQUE:

The student will complete the four Activities described above.

COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:	LEVEL OF COMPETENCE
B-3.4 Designing Component Systems	Familiarization

2. Information/Data Collection and Organization

MODULE 2.1
Orientation to Collecting and Organizing DD&E Information & Data

OVERVIEW:

This module is intended to orient the student to the series of Information/Data Collection and Organization. Using a Final Report of our educational pilot study as the contextual framework, the student is introduced to these categories of data collection: the Literature Review, Observation, Self reporting. Representative data collection and management techniques are examined through example, discussion and brief exercises.

OBJECTIVES:

After working through the module, the student should be able to describe key elements of the following methods of data collection and management.

The Literature Review: problems and procedures involved in the search; one method of organizing data.

Data Collection through Observation: Problems and procedures involved in an observation program; content requirements for a reliable observation form; meaningful presentation of raw data.

Data Collection through Self Reporting: purposes and methods of administration of activity records, questionnaires and interviews.

Linkage with other Modules:

This module precedes the other modules in the Information/Data Series.

Description of Content:

The module consists of four learning episodes and is accompanied by the final report of an educational pilot study. The contents of the learning episodes are:

1. The Research Project, an Overview
2. The Literature Review: Use of Bibliographic Sources
3. Data Collection through Observation
4. Self Reporting: Activity Records, Attitude Questionaires, Interviews

The basic resource that will be used for this module is:

Jung, S.M., Lipe, D & Carter S. Experimental Assessment of an Incentive Program to Enhance School Learning

A Pilot Study. Final Report to Franklin-McKinley School District, Palo Alto, California: American Institutes for Research, 1971.

In addition, the student will be asked to examine the following materials used in the Pilot Study:

Teacher interview form

Student interview form

Parent questionnaire

Parent interview form

Classroom observation form

Instructional practices questionnaire

Parent record form

The student will also read a description of the E-Z Sort file system; read a discussion of bibliographic resources used in an actual literature review; and examine a sample bibliography page.

Enrichment & Supplementary Activities:

There are no enrichment and supplementary activities in the module.

Student Assessment Techniques:

There are no progress checkpoints in this introductory module.

The end-of-module test will ask the student to list, define, identify, and describe information contained in the module materials.

Competence Elements the Module is Designed to Enhance:	Level of Competence
C-3.2 Specifying Types of Evaluation Information/Data	Familiarization
C-5.2 Organizing Information/Data for Analysis	Familiarization

The Readings Used Which are Outside the Module:

American Psychological Association, Standards for Educational and Psychological Tests and Manuals, Washington, D.C., 1966

Borg, W.R. and Gall, M.D., Educational Research, an Introduction, 2nd ed., New York; David McKnay Co., Inc., 1971

Levine, S., and Elsey, F. A Programmed Introduction to Educational and Psychological Measurement, Belmont, California: Brooks Cole Publishing Co. 1970.

The Optional REadings Are:

Engelhart, M.D., Methods of Educational Research, Chicago: Rand McNally and Co., 1972

Sjogram, D.D,"Measurement Techniques in Education" Review of Educational Research, Vol. 40, 11, April, 1970

END OF MODULE ASSESSMENT TECHNIQUE:

The student is asked to select a standardized test that would be suitable for use as a pretest and posttest in determining the effectiveness of a specific product's use with the intended audience.

COMPETENCIES THE MODULE IS DESIGNED TO ENHANCE		LEVEL
C-4.1	Preparing Evaluation Instruments	Familiarization
C-5.1	Administering Evaluation Instruments	Familiarization
C-6.2	Assessing the Evaluation Instruments	Familiarization

2. Information/Data Collection and Organization MODULE: 2.2

Observing and Interviewing

OVERVIEW:

The purpose of this module is to enable the student to develop competences in observing and interviewing that will be useful in development, dissemination, and evaluation (D,D&E) projects. These competences include knowledge of a variety of techniques of observing and interviewing and an understanding of basic principles pertaining to their use, as well as skill in their application.

OBJECTIVES:

1. Knows the general nature of a variety of observation methods and interview techniques and is familiar with ways in which they are commonly used in DD&E projects.

2. Can explain why specific factual evidence should be the main part of recorded observations rather than general descriptive statements or judgments or interpretations of the observer.

3. Can explain the need for "focusing" or "pinpointing" the behaviour or characteristics to be observed or elicited in observations or interviews.

4. Can explain how needs and expectations of the observer can distort observations and how these distortions can be minimized.

5. Can explain why the phenomenon of selective forgetting makes it important to record results of observations or interviews as soon as possible.

6. Can explain how the personality, dress, body, language, and manner of speaking of the interviewer can influence interview results, and can further explain how these distortions can be minimized.

7. Can explain why reliability of observation and interview results can be improved by recording what was said or done accurately and immediately, by obtaining larger samples of behaviors, and by standardizing procedures and definitions.

8. Can describe examples of why it is important to record a description of the setting in which observations and interviews are conducted.

9. Can give examples of how different sequences of questions in an interview might produce different responses--because of the order of the questions rather than their content.

10. Can explain why it is necessary for an interviewer to establish rapport with an interviewee.

11. Can explain why "off-the-cuff" comments by an interviewer--especially those which reflect evaluation of responses--can distort interview results.

12. Chooses wording and format that force the observer to record factual evidence as distinguished from general descriptions, judgments, and interpretations.

13. Includes a statement of purpose, definitions and other guidelines that enable the observer to know precisely what he is supposed to observe.

14. Includes standardized procedures, category descriptions and other instructions designed to minimize distortions due to the needs, expectations and personality characteristics of the observer.

15. Provides space and clear instructions for making immediate records of behaviors.

16. Prepares items that are varied in such a way as to assure that an adequate sample of behaviors will be recorded.

17. When appropriate, includes space and instructions for recording a description of the situation in which the observed behavior occurred.

Given a relatively simple observation schedule with which he is already thoroughly familiar can give an explanation on its use that a co-worker agrees is clear and sufficiently complete to enable him to use the schedule properly.

18. States the purpose of the observations.

19. Describes the types of persons to be observed and the situations in which they will be observed.

20. Explains procedures to be followed, such as when to observe and for how long, where to record various types of behaviors, and how to summarize observations.

21. Explains likely pitfalls in using the schedule and how to avoid them.

22. Given an observation schedule and a self-tested manual on its proper use, can learn (by studying the manual) how to use the schedule within the length of time recommended by its designers, and can make observations and record them on the schedule so that there is at least 80 percent agreement with the observations recorded by a fully trained observer.

23. Can apply these interview techniques to DD&E projects.

END-OF-MODULE ASSESSMENT TECHNIQUE:

The student will be asked to prepare, administer and evaluate observation schedules and interviews.

COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:	LEVEL OF COMPETENCE
C-4.1 Preparing Evaluation Instruments	Familiarization
C-5.1 Administering Evaluation Instruments	Familiarization
C-6.2 Assessing the Evaluation Instruments	Familiarization

2. Information/Data Collection and Organization

MODULE: 2.3
Data Management

OVERVIEW:

This module is designed to introduce students to various techniques for processing, organizing, and displaying data. Students will have a set of data obtained from a DD&E project to work with and will practice many of these techniques using the data. Upon completion of the module students should be able to organize sets of raw data and to prepare clear and informative visual presentations of that data.

OBJECTIVES:

1. Be familiar with the kinds of data and levels of measurement that are commonly used in educational DD&E.
2. Know general procedures for organizing data.
3. Given a DD&E problem and a set of data, organize the data in a meaningful way.
4. Knows a variety of ways to display data.
5. Prepare a clear and informative visual presentation of a set of data.
6. Interpret a visual presentation of a set of data.
7. Evaluate a visual presentation of a set of data

DESCRIPTION OF CONTENT

The module has five Episodes which will describe the planning process and the skills and knowledge needed to accomplish the problem.

1. Types of Data and Levels of Measurement (frequencies, percents, proportions and ratios are data) (nominal, ordinal,interval and ratio are measurements)
2. Methods for Processing and Organizing Data (assigning identification numbers, coding and tallying; also computer facilities and key punch cards.)
3. Methods of Presenting Data: Frequency Distributions (how to construct frequency distributions; the difference between relative and cumulative frequency distributions)

4. Methods of Presenting Data: Graphical Displays (graphic frequency distribution, tabular frequency distributions, polygons, histograms, scatter diagrams, and interpret and evaluate displays.)

5. Methods of Present Data: Pictorial Displays (pie charts and symbol charts)

6. Summary and Review

The Readings are:

Clarke, Robert, et.al. Statistical Reasoning and Procedures. Columbus: Charles E. Merrill Books, Inc., 1965

Guilford, J.P. Fundamental Statistics for Psychology and Education. New York: McGraw-Hill Book Co., 1969

Sawin, Enoch I. Evaluation and the Work of the Teacher. Belmont: Wadsworth Publishing Co., 1969

Spence, Janet T. et.al. Elementary Statistics. New York: Appleton-Century-Crofts, 1968

Tyler, Leona. Tests and Measurements. Englewood Cliffs: Prentice-Hall, Inc., 1963

Readings For Data Management, Far West Laboratory for Educational Research and Development, 1971.

END-OF MODULE ASSESSMENT TECHNIQUE:

The student is to process and display the data collected from the previous module, Observing and Interviewing. The student should process and organize it in a way that seems most appropriate to him or her.

COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:		LEVEL OF COMPETENCE
C-5.2	Organizing Information/Data for Analysis	Low Prof.
C-7.1	Displaying Evaluation Information/Data	Low Prof.
C-7.2	Summarizing the Evaluation Information/Data Analysis	Low Prof.
D-6.2	Analyzing and Displaying Marketing Information Data	Low Prof.

2. Information/Data Collection and Organization

MODULE: 2.4
Data Analysis

OVERVIEW:

This module is designed to be a survey unit on techniques of data analysis, particularly as they relate to educational development, dissemination, and evaluation (D,D&E). It should provide a general familiarity with common statistical terms and concepts. In addition, it will provide opportunities to use various elementary statistical procedures and techniques. The intended purpose of the module is to enable the student, after completion of the module, to comprehend and make limited applications of references to basic statistical problems that may arise in educational D,D&E. In other words, it should help the student to develop an appreciation of statistics and their uses. This module clearly does not attempt to teach the student the statistical skills necessary to conduct various kinds of research. Additional instruction in advanced statistical techniques will be necessary to achieve this proficiency. It should, however, provide the student with sufficient information to correctly interpret the results of more sophisticated analysis.

OBJECTIVES:

The following objectives are defined in terms of specific behaviors which the student should be able to perform at the conclusion of this module. You will notice that these specific behaviors are listed in terms of processes, rather than topics. That is, rather than list all the objectives relating to means or standard deviations together, one objective is concerned with understanding basic statistical concepts (including means and standard deviations); another is concerned with computation of basic statistical measures (including means and standard deviations), and so forth. Thus, the content or topics that each objective relates to are often the same for the different processes stated in the objectives. For example, "averages" (mean, median, mode) are dealt with in all six objectives. So, while the list may at first glance seem foreboding, further examinations will reveal that the actual amount of material being presented is fairly small.

1. UNDERSTAND BASIC STATISTICAL CONCEPTS.

    a. Explain the meaning of the following terms.

        1) arithmetic mean
        2) median
        3) mode
        4) range
        5) standard deviation
        6) standard scores
        7) norms
        8) normal distribution
        9) probability
        10) random sample
        11) sampling error
        12) tests of significance
        13) coefficient of correlation

    b. Given an example of the terms in one of the following pairs, write a statement explaining the difference between the two terms.

1) descriptive and inferential statistics
2) "central tendency" and "variability" in score distributions
3) raw scores and derived scores
4) percent and percentile
5) population and sample
6) significance level and confidence interval
7) research hypothesis and null hypothesis
8) Type 1 and Type 11 error
9) correlation and causality
10) parametric and non-parametric statistics

2. CARRY OUT COMMON STATISTICAL OPERATIONS

a. Compute the following statistical measures.

1) common measures of central tendency (mean, median, mode)
2) common measures of variability (range, standard deviation)
3) derived scores (standard scores, percentiles)
4) level of significance
5) tests of significant differences (χ^2)
6) coefficients of correlation (ρ)

3. INTERPRET THE RESULTS OF ELEMENTARY STATISTICAL ANALYSES.

a. Given data containing the following statistical measures, write or state correct conclusions based on the data.

1) common measures of central tendency (mean, median, mode)
2) common measures of variability (range, standard deviation)
3) derived scores (standard scores, percentiles)
4) level of significance and confidence intervals
5) tests of significant differences (t,χ^2)
6) coefficients of correlation (r ρ)

4. APPLY APPROPRIATE STATISTICAL MEASURES AND TECHNIQUES TO VARIOUS KINDS OF DATA.

a. Given a particular problem and a set of data, specify appropriate

1) measures of central tendency and variability,
2) measures of correlation, and
3) tests of significance of differences.

5. RECOGNIZE INAPPROPRIATE APPLICATIONS AND INTERPRETATIONS OF STATISTICS.

a. point out fallacious uses of statistics involving the above concepts and procedures and give sound reasons as to why they are fallacious.

DESCRIPTION OF CONTENT:

The module consists of ten learning episodes. The contents of these learning episodes are:

1. An Introduction to Data Analysis

2. "Averages": Measures of the Center of Score Distributions
3. Measures of the Variability of Scores
4. Derived Scores
5. Score Distributions and Probabilities
6. Drawing Conclusions based on a Sample: An introduction to Inferential Statistics
7. Forming and Testing Hypotheses about Samples
8. Testing Hypotheses about Data χ^2
9. Exploring Relations Between Groups of Data: Correlation
10. Summary and Review

The basic resources that you will use in this module are the following three books.

Elzey, Freeman. A FIRST READER IN STATISTICS. Belmont: Wadsworth Publishing Company, Inc., 1967.

Huff, Darrell. HOW TO LIE WITH STATISTICS. New York: W.W. Norton, Inc., 1954

Spence, Janet T., et al. ELEMENTARY STATISTICS. New York: Appleton-Century-Crofts, 1968.

Other references are also made to the following books--either additional textual references, or enrichment or supplementary references.

Clarke, Robert, et al. STATISTICAL REASONING AND PROCEDURES. Columbus: Charles E. Merrill Books, Inc., 1965.

Downie, Norville M. TYPES OF TEST SCORES. Boston. Houghton-Mifflin Company, 1968.

Gorow, Frank. STATISTICAL MEASURES: a PROGRAMMED TEXT. San Francisco: Chandler Publishing Company, 1962.

Levine, Samuel & Elzey, Freeman. A PROGRAMMED INTRODUCTION TO RESEARCH. Belmont: Wadsworth Publishing Company, Inc., 1968.

McCollough, Celeste & Van Atta, Loche. STATISTICAL CONCEPTS. New York: McGraw-Hill Book Company, Inc., 1963.

Tyler, Leona E. TESTS AND MEASUREMENTS. Englewood Cliffs: Prentice-Hall, Inc., 1963.

Weinberg, George & Schumacher, John. STATISTICS AN INTUITIVE APPROACH. Belmont: Wadsworth Publishing Company, Inc., 1962.

In addition, several activities will involve using the laboratory materials. These materials include the following:

2 Hexstats
2 decks of cards
2 distance scales
2 wooden incline planes
2 wooden disks

The instructor will inform the students about the location of these lab materials and the hours when they will be available.

END OF MODULE ASSESSMENT TECHNIQUE

The student's competence in these areas will be assessed by means of a performance test. The student will be given a series of problems or situations that might be expected to occur in the field of educational DD&E, and he will be asked to apply his or her skills and knowledge to these incidents. Items comprising the test will be arranged into a series of hierarchial sections, so that items in the higher-level sections will include the knowledge and skills tested in the lower-level sections. Students will begin with the higher-level sections; if they answer the items in those sections correctly, they will have completed the module test. Otherwise, they will go on to the next lower-level section, and so forth until they have determined the level at which they have mastered the material. Additional learning activities may be prescribed by the instructor, based on the student's performance on the various sections **of the test.**

COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:		LEVEL OF COMPETENCE
C-5.3	Analyzing Evaluation/Data	Low Prof.
D-6.2	Analyzing and Displaying Marketing Information/Data	Low Prof.

MODULE 2.5
The Retrieval of Information Using Bibliographical Sources

OVERVIEW:

The purpose of this module is to enable the student to develop competences in conducting searches for information of kinds likely to be needed in development, dissemination and evaluation (D,D&E) projects using a variety of bibliographical sources and other guides for locating information. The competences include familiarity with the location and contents of sources and aids, comprehension of principles underlining procedures for their use, and skills for making searches.

OBJECTIVES:

1. Is familiar with bibliographic sources and other guides to information such as dictionaries, encyclopedias, yearbooks and directories, and is able to locate them in a library and use them.

    a. Knows the names of at least two general references that contain a detailed listing of bibliographical sources and other aids for locating information and
        (1) can find them in a library, and
        (2) can use them to identify sources needed for a particular search problem.

    Example: Documentation in Education, by Burke.

    b. Can locate any of the following in the appropriate card catalog of a library:

        (1) Author-title entries for books
        (2) Subject entries for books
        (3) Document entries
        (4) Pamphlet entries
        (5) Test entries

    c. Can use each of the following to look up specific entries:

        (1) Education Index
        (2) Psychological Abstracts
        (3) Encyclopedia of Educational Research
        (4) International Encyclopedia of the Social Sciences
        (5) Mental Measurements Yearbook, O.K. Buros
        (6) Dictionary of Education, Carter V. Good
        (7) Statistical Abstract of the United States
        (8) Digest of Educational Statistics, 1970, U.S. Office of Education

(9) Education Directory, U.S. Office of Education
(10) Leaders in Education, Jacques Cattell Press
(11) National Register of Educational Researchers, Phi Delta Kappa
(12) Directory of Educational Information Centers, U.S. Office of Education
(13) Dissertation Abstracts
(14) Bibliographic Index
(15) Book Review Digest
(16) Cumulative Book Index
(17) American Universities and Colleges
(18) New York Times Index
(19) Educators World

2. Can locate and use special equipment and devices typically found in libraries.

a. Can find each of the following in a library and use it properly:

(1) Microfilms and microfilm readers
(2) Microfiche cards and readers
(3) Photocopy Machines

3. Comprehends ways in which subjective characteristics of the searcher can bias the procedures and outcomes of a bibliographical search, and knows ways in which such sources of bias can be minimized.

a. Can explain how a search can be influenced or distorted by:

(1) the particular concepts and terminology the searcher is familiar with and prefers.
(2) The particular bibliographical sources and aids that the searcher is familiar with and prefers.
(3) habits or preferences of the searcher for organizing concepts and categories.
(4) the personal values of the searcher that influence his perception of the relative importance of particular documents after they are retrieved.

b. for each of 3a (1) through 3a (4) above, can give at least one example of how a particular bibliographical aid or search procedure can be used to minimize the effects of the particular source of bias.

4. Can conduct a survey of literature related to a given topic or problem and organize the results.

a. Prepares or refines the statement of purpose of the survey through careful analysis of the problem, and, if feasible, through interaction with the person who requested the survey.

b. Formulates descriptors or keywords to guide the search.
c. Prepares a detailed search strategy.
d. Retrieves bibliographic entries and documents, and prepares bibliographic cards according to a standard form.
e. Scans, evaluates and screens retrieved documents.
f. Prepares abstracts or annotated bibliography of documents that passed the screening.
g. Classifies, indexes and organizes bibliography cards and abstracts--by subject, alphabetically, by type of document, chronologically, or as requested by the person who asked for the survey.

DESCRIPTION OF CONTENT:

There are five learning episodes in the module. The activities include library tours, independent study, operating special devices such as microfilm readers, self-administered study tests, practice in looking up specific items of information, and conducting actual searches for DD&E projects.

The titles of the learning episodes are:

1. Introduction and Library Tour
2. Principles and Procedures for Library Searches
3. Locating Bibliographical Sources and Other Library Aids in Another Library
4. Searches for Specific Items of Information
5. Conducting Actual Searches on Practical Problems in DD&E Projects

The student will have much of the responsibility for his own learning. The learning activities are designed so that the instructor can serve as a guide, coordinator and evaluator of learning, but, for the most part, students will learn by doing the tasks in the exercises rather than learning directly from the instructor.

The references in order of appearance in the module are:

Van Dalen, Deobold B. Understanding Educational Research. New York: McGraw-Hill, 1966.

Woodbury, Marda. "A Guide to Educational Resources," in The Educational Information Consultant: Skills in Disseminating Educational Information. Berkeley, Calif.: Far West Laboratory for Educational Research and Development, 1971

Burke, Arvid J. & Mary A. Documentation in Education. 5th ed. New York: Teachers College Press, 1967

Sawin, E.I. "Subjective Influences in Information Searches," A paper prepared specifically for this module. August 1971.

Marron, Harvey & Sullivan, Patricia, "Information Dissemination in Education: A Status Report College and University Research Libraries, July 1971, pp. 286-294.

Grimes, G. & Doyle, J. Information Resources: A Searcher's Manual. Detroit: Michigan-Ohio Regional Educational Laboratory, 1969.

Borg, Walter, R. Educational Research; An Introduction. New York: David McKay, 1963.

END-OF MODULE ASSESSMENT TECHNIQUE:

Devices and procedures for checking on student progress are built into the learning episodes for the module. Provision is made for assessing both the background knowledge needed for conducting a search, and actual search skills of students.

COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:		LEVEL OF COMPETENCE
A-1.3	Designing an Information Search of the Problem Area	Low Prof.
A-1.4	Conducting an Information Search of the Problem Area	Low Prof.
B-1.1	Designing an Information Search (Development)	Low Prof.
B-1.2	Conducting an Information Search (Development)	Low Prof.
C-1.1	Designing an Information Search (Evaluation)	Low Prof.
C-1.2	Conducting an Information Search (Evaluation)	Low Prof.
D-1.1	Designing an Information Search (Dissemination)	Low Prof.
D-1.2	Conducting an Information Search (Dissemination)	Low Prof.

2. Information/Data Collection and Organization

MODULE: 2.6
The Retrieval of Information
Using Special Sources

OVERVIEW:

The purpose of this module is to acquaint the student with various special information resources and to provide detailed instruction in the use of one such system, the Educational Resources Information Center. The student will be introduced to the techniques for locating and retrieving information documents on a specific topic and will be provided with experience in searching for documents, abstracting them, and organizing and preparing a presentation on the topic.

OBJECTIVES:

The overall objective of this module is to acquaint the student with several special information sources. Particular activities will be designed to help develop competence in using one such system, the Educational Resources Information Center (ERIC).

1. Is familiar with a variety of special information resources.
    a. State the full name and describe the types of information available through DATRIX.
    b. Explain how to locate and obtain documents through DATRIX.
    c. State the full name and describe the type of information available through ALERT.
    d. Explain how to obtain and use the ALERT system.
2. Know the general structure and types of information stored in the ERIC System.
    a. State the full name of ERIC and describe how it is organized.
    b. State the function of the ERIC clearinghouses.
    c. Describe the types of information documents stored in the ERIC System.
    d. Describe the various reference tools used in the ERIC system by name and function.
3. Is familiar with the procedure for procuring documents stored in the ERIC system.
    a. Explain the procedure for ordering hardcopy of ERIC documents, including prices.
    b. Explain the procedure for ordering microfiche copies, including prices.
4. Know how the various ERIC reference tools are organized.
    a. State the content and organizational structure of Research in Education. (RIE)
    b. Locate entries in RIE by subject, author and institution.
    c. Interpret entries in RIE, including identifying numbers, codes, author, title, descriptors, and other information.

d. State the content and organizational structure of Current Index to Journals in Education. (CIJE)
e. Locate entried in CIJE by subject and author.
f. Interpret entries in CIJE, including identifying numbers, codes, author, title, descriptors, and other information.

5. Know the purpose and function of the Thesaurus of ERIC Descriptors.

    a. State the function and organization of the Thesaurus.
    b. Interpret the symbols and terms used in the Thesaurus.
    c. Use the rotated descriptor display, descriptor group display, and descriptor group scope notes to identify ERIC descriptors appropriate to a given topic.

6. Know how to complete a search of the ERIC system, using the various reference tools.

    a. Given a topic, develop appropriate and comprehensive list of descriptors using the Thesaurus.
    b. Locate potentially relevant entries in RIE and CIJE.
    c. Ascertain relevancy of located entries by reviewing abstracts.
    d. Retrieve selected documents, view microfiches and prepare summary report of selected relevant documents.

7. Know the general function of the ERIC computerized retrieval system, DIALOG.

    a. Describe the function of DIALOG.
    b. State the general procedure for retrieving information through the DIALOG system.

DESCRIPTION OF CONTENT:

This module is divided into six learning episodes:

1. Introduction to Information Storage and Retrieval Systems
2. Introduction to ERIC
3. ERIC Reference Tools
4. Use of Descriptors in Information Retrieval
5. Conducting a Search using ERIC Reference Tools
6. Preparation of a Search Report and Introduction to Dialog

Each learning episode is self-contained and consists of reviewing various documents, films, slides, film strips, and using the ERIC System to locate and retrieve documents. This module has no assigned text. Rather, there is a series of documents, pamphlets, instructional manuals, excerpts from publications, and audiovisual aids in a supplementary booklet which accompanies this module. The major activities of this module--the location and retrieval of information--will be accomplished by the use of the Thesaurus of ERIC Descriptors and volumes of Research In Education and Current Index to Journals in Education. The various instructional materials are organized by exhibit number in the module. Other resources and reference material that needs to be available for student use are one film, three film strips, one slide presentation, current copies of RIE and CIJE and the Thesaurus. Also a microfiche collection and viewer will be needed.

A. Articles:

1. Burchinal, Lee G., "The Role of the Federal Government in Information Systems in Education. "Journal of the American Society for Information Service, July-August, 1970, pp.274-278.
2. "Processing the Center's Collection," Reference Manual for Educational Information Service Centers, Chap. lV, Falls Church, Virginia: System Development Corp., (Technical Memorandum TM-WD-521/100/01, prepared for the U.S. Office of Education), 1958.
3. "Information Systems and the Teacher of Teachers," Robert Harvey, NTCE/ERIC, Champaign, Illinois.
4. "Teaching ERIC," Robert C. Harvey, NCTE/ERIC, Champaign, Ill.

B. Pamphlets:

1. Information Pamphlet and Examples on ALERT, Far West Laboratory for Education Research and Development, 1970.
2. Information Pamphlet and Examples on DATRIX, Xerox Corporation.
3. Pamphlet: "How to Use ERIC" Office of Education, U.S. Dept. of Health, Education and Welfare. U.S. Gov't Printing Office OE-12037-C.
4. "What's So Special About ERIC at Stanford?" Clearinghouse Brochure No. 1.

C. Newsletter
1. ERIC at Standord

D. Booklet
1. "A Guide to Educational Resources" preliminary form, Far West Laboratory for Educational Research and Development, 1971.

E. Document
1. ERIC Document ED 036 499, "How to Conduct a Search through ERIC" ERIC Clearinghouse on Teacher Education, No. 1 Dupont Circle, N.W., Washington, D.C., 1970 (with microfiche)

F. Film & Film Strips
1. Spires/Ballots Report, #7789. (15 minutes) U.C. Extension Media Center, Berkeley, Calif. 94720.
2. "Introduction to ERIC", National Audiovisual Center, Washington, D.C. 20409 (Set of 3 filmstrips and accompanying record, $5.00).

3. Slide presentation: Interactive Information Retrieval from ERIC at Stanford, 27 slides.

G. Indexes:

1. Research in Education.
2. Current Index to Journals in Education
3. Thesaurus of ERIC Descriptors, CCM Information Corporation, N.Y., 1970.

H. DIALOG Readings:

1. Terminal Users Reference Manual for DIALOG, Information Sciences, Lockheed Palo Alto Research Laboratory
2. Examples of DIALOG print-out title sheet.
3. Examples of DIALOG print-outs of summaries.
4. Summary of Report: An Interactive Information Retrieval System--Case studies on the Use of DIALOG to Search the ERIC Document File, Michele Timbie and Don Coombs, ERIC Clearinghouse, Stanford, Ca., December 1969.

END-OF-MODULE ASSESSMENT TECHNIQUE:

The student will select a topic, develop descriptors, search ERIC publications, identify potentially relevant documents, review abstracts, retrieve and review microfiche of relevant documents and select, organize, and prepare a written presentation, providing in the report titles and abstracts or ERIC documents appropriate to the topic.

	COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:	LEVEL OF COMPETENCE
A-1.3	Designing an Information search of a Problem Area	Low Prof.
A-1.4	Conducting an Information Search of a Problem Area	Low Prof.
B-1.2	Conducting an Information Search (Development)	Low Prof.
C-1.1	Designing an Information Search (Evaluation)	Low Prof.
C-1.2	Conducting an Information Search (Evaluation)	Low Prof.

3.0 COMMUNICATION SKILLS

The Communication Skills series is presently undergoing extensive revision. However, a general outline of the Series is described reflecting present plans to develop four modules.

MODULE 3.1
Listening and Speaking

OVERVIEW

This module will focus on the ways in which formal organizations communicate internally. The aim of the module will be to develop student skills in receiving, organizing, and transmitting information in an organizational setting.

OBJECTIVES

1. Will be able to understand assignments, instructions, and directions and to obtain answers to specific questions.
2. Identify the accuracy or the bias (slant) in the content of speeches.
3. Be able to respond to telephone messages and give adequate directions over the phone.
4. Use information to direct additional data gathering efforts for the purpose of identifying likely consequences of alternative actions.

DESCRIPTION OF CONTENT

The need to understand, respond to, and follow spoken instructions, answer questions, or interact with groups and individuals is universal; therefore, while the materials of the module is specifically designed around the type of work encountered in a DD&E agency, the module components can apply to any field of work. Audiotapes, transcripts, and role playing will be employed to structure exercises. Sample tasks may include situations involving receiving and giving oral instructions, participating in and reporting on staff conferences, and conducting informal briefings and demonstrations.

MODULE 3.2
Technical Writing:
Guidance and
Instructional Materials

3. Communication Skills

OVERVIEW

Adequate preparation of technical documents is an essential skill in any DD&E effort. Therefore, this module will cover skills required for preparation of written forms which provide direct guidance for or are themselves the direct products, e.g., scenarios, scripts, instructional tests, teachers' manuals, and test instruments. The module will provide opportunity for students to assist in the simulated development and evaluation of the technical documents similar to those listed above.

OBJECTIVES

1. Will be able to identify the purpose and design of a sample script.
2. Will be able to evaluate and criticize a sample script.
3. Will be able to identify the major processes involved in developing a simple test instrument.
4. Will be able to prepare a set of test instructions for a simple objective test.
5. Will be able to produce a short scenario or script.

DESCRIPTION OF CONTENT

Episodes in this module require the student to construct, evaluate and analyze documents such as scenarios, scripts, and instructional tests and teachers' manuals. Each learning episode will deal with the design and construction of the above mentioned products. Models and special exercises will provide the student with practice in designing these products.

MODULE 3.3
Technical Writing:
Work Support
Documentation

3. Communication Skills

OVERVIEW

This module will emphasize the competencies needed to write supporting instructions and documentation of work progress. These include: memos, outlines, progress reports, situation papers, literature reviews, field test instructions, and evaluation reports.

OBJECTIVES

1. Will be able to identify supporting documents and their common uses in DD&E agencies.
2. Will be able to prepare simple memos and outlines.
3. Will be able to list major procedural rules in preparing progress and evaluation reports.
4. Will be able to prepare a brief literary review and anotated bibliography.
5. Will be able to identify steps necessary in designing field test instructions.
6. Will be able to prepare simple user instructions.

DESCRIPTION OF CONTENT

The episodes in this module will include a number of sample support documents to familiarize the student with the various types and uses of such documents. Student activities will require the student to prepare short formal reports (e.g., position paper, technical report, or task planning paper) using standard formats and report styles, footnotes, outlines, and bibliographies.

MODULE 3.4
Technical Writing:
Formal Publications

3. Communication Skills

OVERVIEW

This module is designed to familiarize the student with formal communication skills and procedures such as the preparation of formal papers and publications, e.g., proposals, final reports, and journal articles.

OBJECTIVES

1. Will be able to recognize the use of several formal documents.
2. Will be able to identify the various methods used in preparing formal papers and reports.
3. Will be able to explain the basic format of journal articles.
4. Will successfully assemble and complete sample formal documents.

DESCRIPTION OF CONTENT

The format requirements and literary quality of journal articles will be stressed with the trainee being provided examples to critique, edit, and evaluate. Exercises requiring the trainee to conduct a review of the literature and develop a summarization of a potential journal article. Opportunities to critique formal reports will be provided. Criterion models of reports will allow students to evaluate their own critiques. Other tasks will involve the use of pertinent references dealing with style and composition.

4. Developmental Engineering

MODULE: 4.1
Establishing Development Objectives

OVERVIEW:

This module serves two functions: to provide an orientation to the field of Developmental Engineering and to assist the student in acquiring skills in establishing development objectives. Upon completion of the module, the student should be ready to begin development of an educational product, or component of a product.

OBJECTIVES:

By the end of the module, the trainee will be able to develop:

1) an analysis of an educational problem
2) a specification of a solution to that problem
3) a description of a product included in that solution
4) a detailed design for a component of that product
5) a plan for development of that component
6) a statement of development objectives for that product

Linkage with other Modules:

These modules (1.1, 1.2, 1.3) will give the trainee background information which will be helpful in working through this Module.

1.1 The Specification of Expected Outcomes
1.2 Consideration of Alternatives
1.3 Planning for Development

These Modules (6.3, 6.4) could be taken concurrently with this Module

6.3 Problem Formulation and Specification
6.4 Analysis of the Formulated Problem

The following Modules (1.6, 1.7, 4.2) logically follow this Module.

1.6 Introduction to Component Design
1.7 Planning for Component Design
4.2 Engineering a Component

Description of Content:

This module is made up of five learning episodes divided into 19 activities for the student. The activities are based on a series of assigned readings which present the stories of the development of a variety of educational products, and the activities and problems associated with their development.

In Episode 1, the student reviews the factors to be considered in determining a product through careful analysis of a problem statement and of the characteristics of a potential solution to the problem. The second episode shows how to translate a general idea for a solution into a set of specifications from which a product or component of a product can be developed. Episode 111 focuses on planning for product development - determining what tasks and resources will be required to produce the product and developing a schedule for accomplishing this. Episode 1V is designed to acquaint the student with some of the issues product developers must deal with in their work. It should assist the students in anticipating decisions and problems which may arise in their own product development work. In the final Episode, the student is presented with a definition of the term development objectives, their function and how to identify the kinds of background information necessary to establish such objectives. As a summative activity, he is given a specific product or component and asked to state the objectives for its development.

The needed reading materials appear exactly where they are called for. However, a reference to the complete report (or other material) from which the reading has been extracted appears in the bibliography. There are no outside reading assignments.

The Readings Used in the Module are:

Appalachia Educational Laboratory. "Model for Educational Development, an abstract." Charleston, West Virginia. (Appendix 1)

Bialek, Hilton. "Design and Development of a Simulated Game as an Instructional Device for Training Educational Disseminators - Diffusors." Excerpt from a draft of a proposal prepared by the Human Resources Research Organization, Division No. 3, Monterey, California (Appendix K)

Borg, Walter, R. "The R&D Process as Used in Designing Minicourses." Far West Laboratory for Educational Research and Development, 1968. (Appendix 1)

Dunn, James A. "The PLAN Guidance System - 1970." Operations Council Position Paper, Dec. 11, 1969. (Appendix E)

Hood, Paul D., et.al. "Developmental Engineering Course," excerpt from Design of a Functional Competence Training Program for Development, Dissemination, and Evaluation Personnel at Professional and Paraprofessional Levels in Education, Volume two, Secion G. Berkeley: Far West Laboratory for Education Research and Development, 1970. (Appendix G)

Jenks, Lynn. "Training Unit" Objectives and Evaluation, a Concept Paper." in draft. Far West Laboratory for Educational Research and Development, 1971. (Appendix C)

Kratochvil, Dan. Sesame Street. Technical Report #10. Palo Alto: American Institutes for Research, 1971.(Appendix F)

Smith, Robert G., Fr. "Models of the Engineering Process," excerpt from The Engineering of Educational and Training Systems. Lexington, Mass.: Heath Lexington Books, 1971. (Appendix 1)

Southwest Educational Development Laboratory. "Introduction" and "The Concept of Product Development," excerpts from A Development Process Adopted by the Southwest Educational Development Laboratory July 14, 1970. Southwest Educational Development Corporation: 1970. (Appendix J)

Thompson, Lorna and Kratochvil, Dan. The Creative Learning Group Drug Education Program. Technical Report #6. Palo Alto: American Institutes for Research, 1971. (Appendix D)

Supplementary Readings are:

Dillman, Frederick E. Jr. Instructional Objectives: Specificity and Behavior. A mini-program from the Institute of Communication Technology. Menlo Park: Dillman Assoc., 1971.

Handy, H.W. and Hussain, K.M. Network Analysis for Educational Management. Engle Cliffs, N.J.: Prentice-Hall, 1969.

Mager, Robert F. Preparing Instructional Objectives. Palo Alto: Fearon Publications, 1962.

Enrichment and Supplementary Activities:

There are no specific supplementary or enrichment activities given in the module.

Student Assessment Techniques

There are six progress checkpoints in this Module. In the 1st checkpoint the student is asked to prepare a statement which identifies the components which should be included in an analysis of an educational problem. In the 2nd checkpoint the student prepares a statement evaluating the strengths and weaknesses of the alternatives (developed in checkpoint 1). Based on this evaluation the student selects the best solution and defends the selection. In the 3rd checkpoint the student prepares a written description of the selected product. The student then designs one component of the product. In the 4th checkpoint the student prepares a schedule for the development of the component. In the 5th checkpoint the student reviews the schedule and looks for potential decision or problem points and then makes any needed revisions in the developmental plan. In the 6th checkpoint the student specifies the development objectives for the product to be developed in the subsequent modules of this series.

There will be no end-of-module test for this module.

Competence Elements the Module is Designed to Enhance:	LEVEL OF COMPETENCE
A-1.1 Identifying the Problem Area	Familiarization
A-4.1 Specifying the Desired Outcomes	Familiarization
A-7.1 Preparing the Description of Problem Analysis	Familiarization
B-3.1 Establishing Development Objectives	Familiarization
B-3.2 Preparing a Development Plan	Familiarization
B-3.3 Determining Developmental Parameters	Familiarization
B-3.5 Scheduling for Production	Familiarization

OVERVIEW:

This Module instructs the student in instructional systems theory and the design elements of a component or product of an instructional system. Further it identifies the sequential process for assembling these elements.

OBJECTIVES:

The overall objective of this module is to enable the student to create and assemble a prototype, instructional component.

There are three groups of sub-objectives which will enable the student to attain the main objective. These are:

1. to understand the major concepts and steps in designing an instructional system,
2. to understand the concepts and design elements necessary to create an instructional product and to engineer a component,
3. to prepare an actual prototype component from a set of design specifications.

LINKAGE TO OTHER MODULES:

These modules (1.6, 1.7, 4.1) will give the trainee background information which will be helpful in working through this module.

1.6 Introduction to Component Design

1.7 Planning for Component Design

4.1 Establishing Development Objectives

4.3 logically follows this module.

4.3 Building A Whole Out of Its Parts

DESCRIPTION OF CONTENT:

The module is divided into two episodes. The first episode is optional for those students without an extensive background in the theory of instructional systems.

The first episode introduces the key concepts and key design elements in creating an instructional system. In the second section of this episode, a case study is presented which illustrates how a team of developers went about creating an instructional system.

The second episode focuses upon the concepts and design elements leading to the creation and engineering of an instructional product and component. The episode concludes with a return to the case study and investigates how the team of developers prepared the products for the system they were designing.

ENRICHMENT AND SUPPLEMENTARY ACTIVITIES:

None.

STUDENT ASSESSMENT TECHNIQUES:

There are two Progress Checkpoints in this module. In the first Checkpoint the student is asked to describe, in sequence, the steps used to design an instructional system, and to recognize examples of these steps from reading material. In the second Checkpoint the student is asked to a) list the inputs needed to design a product, b) describe the decisions necessary to design a product, c) describe the difference between a component and an instructional product, d) list the elements of an instructional product, 3) describe schedules and checklists necessary in the design of an instructional product, f) recognize the necessary ingredients of an instructional product from a reading.

The End of Module Exercise asks the student to create an instructional product component using given sample component requirements.

COMPETENCE ELEMENTS THE MODULE IS DESIGNED TO ENHANCE:	LEVEL OF COMPETENCE
B-4.1 Developing a Component	Low Proficiency
a) Specify the purpose of a given component of the instructional system.	Familiarization
b) Specify the performance outcomes or objectives.	Familiarization
c) Specify constraints and resources.	Familiarization
d) Select instructional content.	Familiarization
e) Organize and sequence instructional content.	Familiarization
f) Select methods and media for presentation of instructional content.	Orientation
g) Prepare tests and measures to assess student performance.	Familiarization
h) Evaluate effectiveness of component or product in meeting performance outcomes.	Orientation
i) Modify the component or product to improve its effectiveness in meeting performance outcomes.	Orientation

5. Evaluation

MODULE: 5.1
The Role of Evaluation in DD&E

OVERVIEW:

This module will introduce the student to a few basic concepts and the general functions of evaluation in the different contexts of D,D&E. This orientation material will be received and then several case studies will be examined to provide meaningful introduction to the many facets of evaluation.

OBJECTIVES:

1. Present and describe examples of several evaluation efforts.
2. Explain the general purpose of performing an evaluation. Present examples of specific evaluation objectives.
3. Outline the basic steps in the evaluation process.
4. List many of the day-to-day tasks performed by professionals involved in an evaluation.
5. Define and give examples of the following terms.

    validity
    reliability
    statistical significance
    formative evaluation
    summative evaluation

DESCRIPTION OF CONTENT:

This module includes five case studies. One deals with various evaluations of the television program Sesame Street. The case studies are the real heart of this module. Explanatory text has been kept to a minimum. The module is divided into eight sections. Section 1 describes the purpose of evaluation and defines two kinds of evaluation. Secion 2 is the case study on the central city school program. Section 3 outlines the basic steps in the evaluation process and defines some of the important terms. Sections 4 through 7 contain case studies dealing with the evaluation of Sesame Street. Section 8 contains several final activities.

The references are:

> Ball, S. and Bogatz, G.A. A summary of the major findings in "The first year of Sesame Street: An evaluation." Princeton: Educational Testing Service, 1970.

Cook, D.L. Program Evaluation and review technique: applications in education. U.S. DHEW OE; OE-12024, Cooperative Research Monograph No. 17, Washington D.C.: U.S. Gov't Printing Office, 1966.

Cronbach, L.J. *Essentials of psychological testing, 2nd edition*. New York: Harper and Row, 1960.

Cronbach, L.J. Course improvement through evaluation. *Teachers College Record*, 1963, 64 (8), 672-683.

Grobman H. Evaluation activities of curriculum projects. AERA monograph series on curriculum evaluation. Chicago: Rand McNally & Co., 1968.

Hawkridge, D.G., Campeau, P.L. & Trickett, P.K. *Preparing evaluation reports: a guide for authors.* Pittsburgh: American Institutes for Research, 1970. AIR Monograph No. 6.

Light, R.J. & Smith, P.V. Choosing a future: strategies for designing and evaluating new programs. *Harvard Educational Review*, 1970, 40(1), 1-28.

Phi Delta Kappa National Study Committee on Evaluation. *Educational evaluation and decision making.* Itasca, Illinois: F.E. Peacock Publishers, Inc., 1971.

Scriven, M. The methodology of evaluation. AERA monograph series on curriculum evaluation 1: perspectives of curriculum evaluation. Chicago: Rand McNally & Co., 1968.

Suchman, E.A. *Evaluative research*. New York: Russell Sage Foundation, 1967.

END-OF MODULE ASSESSMENT TECHNIQUE:

In Section 8 of the Module the student is asked to:

(a) compile a list of tasks professionals actually do from day to day when they work on an evaluation.

(b) outline an evaluation plan of a product

	COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:	LEVEL OF COMPETENCE
C-1.3	Inventorying Evaluation Alternatives	Familiarization
C-2.1	Analyzing the feasibility of Evaluation Strategies	Familiarization
C-3.1	Planning for Evaluation	Familiarization
C-3.2	Specifying Types of Evaluation Information/Data	Familiarization
C-6.1	Assessing the Evaluation Plan	Familiarization

5. Evaluation

MODULE: 5.2
Test and Measures

OVERVIEW:

In this module the student will be specifically concerned with already developed and standardized test instruments. The module will: (a) acquaint the student with the critical properties of tests and give experience in how to choose appropriate tests on the basis of these properties; (b) introduce the student to the many reference sources of tests and give experience in how to select and evaluate standardized tests.

OBJECTIVES:

At the conclusion of this module the student will be able to:

1. describe the distinction between measurement and evaluation;
2. specify and define the four levels of measurement;
3. define the meaning of the term "standardized test;"
4. define the meaning of "norm" group;
5. distinguish among the various types of test validity;
6. interpret the meaning of various types of test reliability;
7. interpret the meaning of various methods of expressing test scores;
8. prepare a list of critical factors that should be considered in selecting a standardized test for use in evaluating the effectiveness of a developed educational product;
9. locate descriptions and reviews of tests and evaluate their appropriateness for specific evaluational purposes.

DESCRIPTION OF CONTENT:

This module is divided into six learning episodes.

1. This episode presents an introduction to tests and measures and discusses levels of measurements, conditions of test administration, and critical factors concerning norm groups.

2. This episode introduces you to the concept of test validity, the various types of validity, and how they are determined.

3. In this episode the various types of test reliability will be presented and the relationship of errors in measurement and reliability will be discussed.

4. The various methods of expressing test scores and interpreting them is covered in this learning episode.

5. The various types of standardized tests are presented along with a discussion of the factors influencing the selection of tests.

The Readings in the Module are:

Adams, G.S., Measurement and Evaluation in Education, Psychology, and Guidance, New York: Holt, Rinehard and Winston, 1964.

Ahmann, J.S., and Glock, M.D., Evaluating Pupil Growth, 4th ed., Boston: Allyn and Bacon, 1971.

Anastasi, A., Psychological Testing, New York: The Macmillan Co., 3rd ed., 1968.

Boyd, J.L. and Shimberg, B., The Directory of Achievement Tests for Occupational Education, Princeton, New Jersey: Educational Testing Service, 1971.

California Test Bureau, A Glossary of Measurement Terms, Monterey, California, Del Monte Research Park.

Johnson, O.J., and Bommarito, J.W., Tests and Measurements in Child Development: A Handbook, San Francisco, California: Jossey-Bass, Inc.

Linden, J.D., and Linden, K.W., "Judges and Juries," Tests on Trial Guidance Monograph Series 111: Testing.

_______________,"Test Publishers and Scoring Services," Tests on Trial Guidance Monograph Series 111: Testing

Perry D., Interpreting Standardized Test Scores, Minneapolis, Minnesora; University of Minnesota, 1971 (Technical Report #8000)

The Psychological Corporation, "Methods of Expressing Test Scores." Test Service Bulletin #48, New York, January, 1955.

The Sixth Mental Measurements Yearbook, Ed. O.K. Buros, Highland Park, New Jersey: Gryphon Press, 1971.

The Readings in the Module are:

Adams, G.S., Measurement and Evaluation in Education, Psychology, and Guidance, New York: Holt, Rinehard and Winston, 1964.

Ahmann, J.S., and Glock, M.D., Evaluating Pupil Growth, 4th ed., Boston: Allyn and Bacon, 1971.

Anastasi, A., Psychological Testing, New York: The Macmillan Co., 3rd ed., 1968.

Boyd, J.L. and Shimberg, B., The Directory of Achievement Tests for Occupational Education, Princeton, New Jersey: Educational Testing Service, 1971.

California Test Bureau, A Glossary of Measurement Terms, Monterey, California, Del Monte Research Park.

Johnson, O.J., and Bommarito, J.W., Tests and Measurements in Child Development: A Handbook, San Francisco, California: Jossey-Bass, Inc.

Linden, J.D., and Linden, K.W., "Judges and Juries," Tests on Trial Guidance Monograph Series 111: Testing.

______________,"Test Publishers and Scoring Services," Tests on Trial Guidance Monograph Series 111: Testing

Perry D., Interpreting Standardized Test Scores, Minneapolis, Minnesora; University of Minnesota, 1971 (Technical Report #8000)

The Psychological Corporation, "Methods of Expressing Test Scores." Test Service Bulletin #48, New York, January, 1955.

The Sixth Mental Measurements Yearbook, Ed. O.K. Buros, Highland Park, New Jersey: Gryphon Press, 1971.

The Readings Used Which are Outside the Module:

American Psychological Association, Standards for Educational and Psychological Tests and Manuals, Washington, D.C., 1966.

Borg, W.R., and Gall, M.D., Educational Research, an Introduction, 2nd ed., New York: David McKay Co., Inc., 1971.

Levine, S., and Elzey, F., A Programmed Introduction to Educational and Psychological Measurement, Belmont, California: Brooks Cole Publishing Co. 1970.

The Optional Readings are:

Engelhart, M.D., Methods of Educational Research, Chicago: Rand McNally and Co., 1972.

Sjogren, D.D., "Measurement Techniques in Education," Review of Educational Research, Vol. #40, 11, April, 1970.

END OF MODULE ASSESSMENT TECHNIQUE:

The student is asked to select a standarized test that would be suitable for use as a pretest and posttest in determining the effectiveness of a specific product's use with the intended audience.

COMPETENCES THE MODULE IS DESIGNED TO ENHANCE:

C-4.1 Preparing Evaluation Instruments
C-5.1 Administering Evaluation Instruments
C-6.2 Assessing the Evaluation Instruments

MODULE: 5.3
Development of
Instruments

5. Evaluation

DESCRIPTION OF CONTENT

This module is being redesigned and the specification of content is not yet complete. However, the module will provide trainees with information on the basic steps for developing evaluation instruments and will include exercises that require the construction of sample test items or small components of evaluation devices.

FORMAT

The form of the module will be print and will follow the structure of Module 4.2 (see Attachment Two). Special exercises will be designed that require the student to practice the design of test items and development of small test instruments including item analysis and testing for reliability and validity. A simulation exercise will be included in the standard test battery that will allow the trainee to demonstrate his or her proficiency in developing small test instruments.

DESCRIPTION OF CONTENT

Students will read case studies and supporting technical information about the conduct of field tests. Students will practice administering a variety of instruments to each other under simulated field test conditions. Each student will then be provided with a file containing field test plans, descriptions, and analyzed data representative of the products of a field test. He will be directed to follow guidelines to evaluate the data and produce a short report of his findings. Students will study descriptions of the types of content analysis often used in development projects and perform at least one content analysis of actual data. The results will be checked and revised until they are satisfactory. Case materials illustrating commonly encountered problems in the administration, analysis, and evaluation of instruments used in questionnaires, surveys, observation, field tests, etc., will be presented and discussed.

FORMAT

The format will be print and will contain four Episodes. Each episode will provide activities for the student to complete. The feedback section will give the answers to these activities. Also, there will be two or three progress checkpoints in which the student will do simulations and evaluate data from sample field test situations.

5. Evaluation

MODULE 5.5
Evaluation Problems

DESCRIPTION OF CONTENT

This module will provide practice in coping with a variety of informal and formal evaluation problems, using examples drawn from all phases of development from analysis through dissemination. Most of the problems presented at this level will focus on the judgmental and value problem of obtaining and bringing data and information to bear on the type of important decisions encountered throughout all development phases. The student will be introduced to basic approaches and methods for systematically examining one problem, the nature of the evidence needed, the adequacy of the evidence available and the procedures for organizing and analyzing this information with respect to decision and value systems.

FORMAT

The format will be print and will contain four episodes. The student will be required to do activities and progress checkpoints. Also, there will be an end of module test to complete.

MODULE 6.1
Problem
Formulation

6. Analysis and Definition

DESCRIPTION OF CONTENT

In this module, the student will begin with an overview delineating the function of analysis and problem definition in DD&E Agencies and the kinds of skills required. An episode will then review system analysis, problem identification, and problem definition including practice in establishing needs and identifying problems. Another episode will provide a set of questions relating to specific problems. An exercise will involve identifying and describing problem areas and examining approaches for analyzing problems in terms of their validity, criticality, and feasibility of solution. A final exercise will be the preparation of a problem statement.

FORMAT

The format of this module will be print and will contain four episodes; the last involving a student exercise that guides the student to the development of a format, structured problem statement. Each episode will contain checkpoints whereby the student can evaluate his/her progress as well as the standard battery of test instruments administered upon completion of the module. No special audiovisual equipment will be necessary.

MODULE 6.2
Problem Analysis

DESCRIPTION OF CONTENT

This module will provide exercises consisting of problem statements for analysis by the student. From this information, the student will revise his own problem statement, if necessary, developed in the first module. A second episode will involve the student in applying information related to the important variables in the problem statement. Exercises will include such problem activities as definition of populations, relating alternative solutions to criteria, resources, and market variables. The final student exercise will direct the student through a problem analysis including a complete statement of the problem and outlining constraints, alternative solutions, requirements, and recommendations.

FORMAT

The form of the module will be primarily print, the structure involving three episodes, each requiring the student to perform some prescribed activity or exercise. The module will include self-evaluation exercises or questions with feedback, the standard assessment battery, and a final exercise that allows the student to produce a well organized, valid analysis of a problem statement.

7. Dissemination and Marketing

MODULE: 7.1
Design and Evaluation of Dissemination and Marketing Models

OVERVIEW:

This module is designed to give the student an overview of the dissemination process. It is structured to help the student progress from the stage of understanding educational problems and the theoretical models of communication to a stage where the student will build and critique dissemination models.

OBJECTIVES:

The student should be able to:

1. Recognize three aspects of dissemination: its scope, its characteristics; and representative generalizations about it.
2. Recognize strengths and weaknesses of today's educational communication network and be able to relate such perspective to the conceptualization of models of educational dissemination.
3. Relate the function of dissemination roles assumed by people to the impact of these roles upon the utilization of educational practices, products, and ideas.

Linkage to Other Modules:

1.5 Planning for Dissemination precedes this module.

The other three modules in the Dissemination and Marketing series follow this module.

Description of Content:

This module is made up of three learning episodes; it includes 11 student activities and five progress checkpoints. The activities are based on readings presented in the module.

In Episode I the student reads a summary of analyses of the dissemination process made in five different fields of inquiry and a brief discussion of generalizations about dissemination. The student is asked to apply the generalizations to specific educational dissemination goals by identifying the target audiences and innovations and by suggesting steps necessary to achieve a specific goal.

In Episode II the student reads a description of the components of today's educational communication network and an evaluation of the network in terms of communication components in fields routinely influenced and modified by scientifically derived information. The student then reads a description of a hypothetical dissemination process that is successful and descriptions of two actual attempts to disseminate educational innovations which were unsuccessful. The student is asked to critique today's educational communication network in general and one specific component within the network. The student then reads a discussion of criteria for developing dissemination models and is asked to identify from a prior reading the dissemination problem and the variables and processes involved in disseminating the innovation described. He then examines several dissemination models of the same process and constructs a model from a new descriptive reading.

In Episode III the student reads two discussions of roles people play in the dissemination process and a description of a hypothetical dissemination program. The student is asked to identify the roles and functions of various people involved in the hypothetical program. The student then reads a discussion of various dissemination strategies and an excerpt from an actual marketing study for an educational innovation. As a final checkpoint activity, the student is asked to discuss the marketing study in terms of rationale for identifying data needed, consideration of alternative distribution modes and the influence of data gathered on the choice of distribution mode.

Excerpts from the following outside sources are incorporated in the module:

Hutchins, C.L., McIntyre, D., Mitchell, K.& Harding, J. Marketing study: Management training units, Berkeley, California: Far West Laboratory for Educational Research and Development, 1972.

Louis, K.S. & Metzger L. Measuring the goals of action programs. New York: Bureau of Applied Research, Columbia University, 1971.

Rogers, E.& Shoemaker, F. Communication of innovations. New York: The Free Press Division, Collier-Macmillan, 1971.

Travers, R.M.W. A study of the relationship of psychological research to educational practice. In R. Glaser (Ed.), Training research and education . New York: John Wiley and Sons, 1962.

Suggested Supplementary Resources

BOOKS:

Bennis, W.G., Benne, K.D. & Chinn, R. The planning of change. New York: Holt, Rinehart and Winston, 1961. (in FWL Library)

Crawford, J.J., Kratochril, D.W. & Wright, C.E. Evaluation of the impact of educational research and development products. Palo Alto: American Institutes for Research, 1972. (in FWL Library)

Havelock, R. Planning for innovation. Ann Arbor: Institute for Social Research, University of Michigan, 1971. (in Learning Lab.)

Miles, M. (Ed.) Innovation in education. New York: Teachers College, Columbia University Press, 1964. (in FWL Library)

Miller, R. Perspectives on educational change. New York: Appleton, Century Crofts, 1967. (in FWL Library)

Riccio, A. & Cyphert, T. Teaching in America. Columbus, Ohio: Charles Merrill and Company, 1962. (out of print. in S.F. State Library)

Rogers, E. & Shoemaker, F. Communication of innovations. New York: Free Press Division, Collier-Macmillan, 1971. (in Learning Lab.)

FILM:

Make a Mighty Reach, a film on educational innovations produced by the Institute for the Development of Educational Activities (IDEA) of the Charles F. Kettering Foundation. Dayton, Ohio, 1967. 16 mm

This film may be rented from IDEA,Dayton, Ohio, for $15 for three days.

Otherwise it is available to S.F. State instructors only, to be viewed on campus. The film may be reserved by calling the Audio-visual Center, Tel. 469-1492, x 7038.

Tel. 469-1494 to reserve projector and screen. If you need to reserve a viewing room at the audio-visual center, make reservations far in advance.

Student Assessment Techniques:

Progress Checkpoints

There are five Progress Checkpoints in this module which lead the student from analysis of dissemination problems in general to evaluation and building of actual dissemination models.

(Ep. I) 1. Progress Checkpoint 1 requires the student to identify innovations and target audiences in a variety of goal statements. It further requires the student to apply dissemination generalizations to one goal statement by suggesting steps necessary to achieve the goal.

(Ep. II) 2. Progress Checkpoint 2 requires the student to write a critique of today's educational communication network in general and one specific component within the network. For his network critique, the student is to use as evaluation criteria seven practices found in fields which are influenced and modified by scientifically derived information.

He is to discuss the specific component in terms of: institution base, dissemination formats used, roles used to expedite diffusion and the nature of feedback sought.

The student is also asked to identify the strongest and weakest components of the educational communication's net work and contrast them in terms of: institutional base, dissemination formats used, roles used to expedite diffusion and the nature of feedback sought.

(Ep. II) Progress Checkpoint 3

The student is required to read a short description of the dissemination of an educational product and to construct a dissemination model based on the reading. The student is also asked to write down his criteria for structuring the model and the variables and processes included.

Finally, the student is required to write a critique of his own model, noting 5 strengths and weaknesses.

(Ep. III) Progress Checkpoint 4

The student is required to write a critique of a wine service dissemination project which is described in Episode 3. The student is asked to discuss four steps in the dissemination process: 1. methods of dissemination used; 2. how the dissemination methods were focused upon targed audiences;
3. innovator interaction with the targeted audiences;
4. kinds of feedback sought by the innovator.

The student is also asked to identify important aspects of the dissemination process which were neglected or poorly handled and offer a course of action which might improve the overall dissemination effort.

(Ep. III) Progress Checkpoint 5

The student is required to write an analysis of a marketing study described in Episode 3. The analysis must include:
1. a rationale for identifying data needed; 2. an overview of alternative distribution modes considered; 3. a discussion of how data influenced the choice of distribution mode.

End of Module Test

1. Application of Model Building and Evaluation Skills

The end of module test requires the student to apply the dissemination concepts and model building and evaluation skills he has learned to three different educational dissemination problems. The student must be able to do the following:

1. Identify target audiences for given innovations.
2. Outline strategies for dissemination of given innovations
3. List criteria to be used to determine best methods of dissemination from available alternatives.
4. List variables that must be considered in order to effectively disseminate an educational product.

2. Integration of Knowledge about dissemination as a Process and Problems of Educational Dissemination

The student is also asked to discuss why unproven innovations are routinely diffused to educators and routinely adopted by them. (This question draws on information gained in Episode II).

Finally, the student is asked to outline a plan to resolve the problem of diffusion and adoption of unproven educational innovations.

Competence Elements the Module is Designed to Enhance:		Level of Competence
D-2.1	Assessing the Customer/Market	Familiarization
D-2.2	Analyzing Marketing Feasibility	Familiarization
D-2.3	Analyzing Marketing Compatibility	Familiarization
D-2.4	Analyzing Marketing Cost-Effectiveness	Familiarization
D-3.1	Designing the Marketing Strategy	Familiarization
D-3.2	Designing a Marketing Component	Familiarization
D-3.3	Scheduling Dissemination Activities	Familiarization

MODULE 7.2
Working with the Consumer

7. Dissemination and Marketing

DESCRIPTION OF CONTENT

(This module is now being redesigned; therefore, only a summarization of the content is provided).

The module will address the following competence subsets:

D2 Analyzing Alternative Dissemmination Strategies
D4 Developing Marketing Devices
D5 Implementing the Dissemination Strategy
D7 Communicating Marketing Results

An episode will be designed to discuss how to relate to and utilize communication resources offered by USOE-supported agencies, private foundations, professional associations and the world of business.

A second episode will investigate what is known about current diffusion and utilization practices within the field of education, including studies by Wolf and Fiorina, Brickell, and Carlson.

A third episode will discuss how to profit from what is known about current marketing practices within the field of education.

FORMAT

Exercises will be included to allow students to gain the competencies to the proficiency levels specified. The standard assessment battery will also be developed for this module. The module will be primarily textual with simulated exercises and self-evaluating checkpoints.

MODULE 7.3
Installing Educational Products

7. Dissemination and Marketing

DESCRIPTION OF CONTENT

(This module is now being re-designed; therefore, only a summarization of the content is provided.)

The module will address the following competence subsets:

D2 Analyzing Alternative Dissemination Strategies
D5 Implementing the Dissemination Strategy
D7 Communicating Marketing Results

It is proposed that an episode focus on selecting the innovation to be diffused including need analysis, cost-benefit considerations and resource capabilities for change.

A third episode will deal with selecting the target audiences. This will include marketing surveys, sociometric analyses, and demographic data acquisition.

Episode four will address measurement and evaluation techniques. This will include cost-benefit considerations, availability of data, sources of data, and analytic capabilities.

A final episode will deal with selecting feedback mechanisms, again revolving cost-benefit considerations as well as feedback usage.

FORMAT

This module will be structured in five episodes, each with practice exercises, text-imbedded questions and self-evaluative checkpoints. The standard assessment battery will be developed including, if appropriate to the learning situation, a short simulated activity. The form of the module will be primarily print.

MODULE 8.1
Management of
Personnel

8. Management

DESCRIPTION OF CONTENT

(The content of this module has not yet been specified; therefore, a summarization from the Design Report is provided.)

The first episode in this module will focus on competencies involved in acquiring new employees, i.e., preparing job descriptions, interviewing, orientation, and assignment.

Other episodes will focus on the management of personnel including morale, evaluation, employee efficiency, work planning, supervision, human relations, and leadership.

FORMAT

The module will involve limited simulation exercises where the student can react to structured situations and compare the response to models provided. Further, self-evaluation questions and checkpoints will be included, in addition to extensive readings on personnel management theory. The standard battery of assessment devices will be available.

MODULE 8.2
Management of Program Operations

8. Management

DESCRIPTION OF CONTENT

(The content of this module has not yet been specified; therefore, a summarization from the Design Report is provided.)

This module will, through several episodes, introduce the student to selected management planning tools, such as activity analysis, flow charting, time and cost estimation, network planning, critical path analysis, and scheduling.

FORMAT

Several special exercises will be provided to allow the student to develop skills in the above activities. Self-evaluation checkpoints and questions will be included along with exemplary models and feedback. The standard battery of assessment devices will also be developed.

MODULE 9.1 Orientation

OBJECTIVES

The trainee will be able to:

Through the readings and instructor input, gain an understanding of the setting within which and Educational Information Consultant (EIC) works and the need for services he would provide.

Identify alternative levels (local, regional, state, etc.) as defined by the readings.

Describe types of networks (directive, nondirective, etc.) as defined by the readings.

Describe an operational information center, its purpose and function, as defined by the readings.

Explain the emerging need for the Educational Information Consultant.

DESCRIPTION OF CONTENT

This module provides an introduction to the EIC Series with readings and instructor input on the material, state and regional information networks and their potential contribution to educational practice. Thus, a mediated introduction to the emerging role of the EIC in which five basic processes are identified and briefly described.

FORMAT

The module is organized into three episodes or learning activities. The first involves reading materials and instructor discussion of various levels within which the EIC can function. This is followed by an audio-visual overview of the role of the EIC. Finally, there is a T-puzzle exercise to demonstrate the complexities and skills required for clear communication. Criteria are available for evaluating the student's product.

MODULE 9.2 Negotiation and Communication

OBJECTIVES

The trainee will be able to:

Name three typical modes by which an EIC can receive requests for information from a client: (1) face-to-face, (2) written, and (3) telephone.

Observe and identify some of the communication techniques involved in receiving and negotiating a client problem via the telephone.

Given an EIC Negotiation Checklist, record background information about the client and describe the general nature of the client's problem and the type of information needed.

Understand the importance of using a form to record data during negotiation of a client problem, particularly in terms of its value as a kind of "contract" with the client, as a reference used subsequently in filling the client's request, and as a written record of the negotiation.

Understand the importance of restating the client's problem during the negotiation.

Comprehend, in terms of presenting retrieved and transformed information to a client, the impact of verbal and nonverbal interaction on the effectiveness of the communication process, as demonstrated in an EIC to client role-playing exercise.

Name and define verbal and nonverbal skills necessary for effective communication, as outlined in The EIC/Client Communication Checklist.

Using the EIC/Client Communication Checklist, evaluate the effectiveness of communication skills demonstrated in a role-playing exercise.

Relate the communication process to the overall context of the EIC role.

DESCRIPTION OF CONTENT

This module contains two major learning episodes, namely negotiation and communication. The negotiation episode consists of nine instructional elements dealing with the following activities:

(1) Observing the Negotiation Process
(2) Negotiating a Client Problem

(3) Designing the Negotiation Checklist
(4) Stating a Problem for Negotiation
(5) Analyzing the Negotiation Checklist
(6) Negotiating a Real Client Problem
(7) Questing in the Negotiation Process
(8) Reformulating the Real Client Problem
(9) Synthesis of the Negotiation Process

The Communication episode has six elements addressing the following:

(1) Observing the Communication
(2) Guidelines for Conveying Information to the Client
(3) Preparation of a Letter Conveying Package to Client
(4) The Written Communication
(5) Application to Client Problem
(6) Synthesis on Communication

FORMAT

The format of the elements include both small-and large-group presentations, role-playing exercises and evaluation discussions. Trainees will listen to taped interviews between an EIC and a client. Also, the student product is evaluated against criteria provided.

MODULE 9.3 Retrieval and Transformation

OBJECTIVES

The trainee will be able to:

Define the retrieval process and designate the skills necessary for effective retrieval.

Name, in sequence, and analyze the relationships between the five basic operations in information searching procedure.

Analyze the "Bibliographic Chain" and describe its relationship to the search strategy.

Value the process of planning and implementing a systematic search.

Analyze a client problem to determine the type, quantity and depth of information to be presented in a transformed package. Screen and select information items appropriate to a client problem, indicating the appropriate format in which to present them.

Specify criteria used to decide on the content and format of information to be included in the client package.

Become aware of the need to discriminate among alternative formats for transforming information, based on assessment of a client, his problem, constraints and purpose in requesting information.

Make judgments about assistance a client might need to use the package of transformed information, by indicating the need for "utilization aids," such as "List of Contents," "Description of Contents," etc.

Value planning as an essential phase of the transformation process.

DESCRIPTION OF CONTENT

This module also consists of two major learning episodes, Retrieval and Transformation. The Retrieval episode consists of eight elements dealing with:

(1) The Search Strategy Exercise
(2) Selecting Search Terms
(3) Planning the Search
(4) Beginning the Search
(5) Subjective Influences in Retrieval

(6) The ERIC Information System
(7) Reformulation and Completing the Search
(8) Synthesis of the Retrieval

The Transformation episode also consists of eight elements:

(1) Introduction to the Transformation Process
(2) Transforming Information
(3) Planning the Client Package
(4) Preparing the Client Package
(5) Selecting and Organizing Information
(6) Summarizing Information
(7) Applying Transformation to the Client's Problem
(8) Synthesis of the Transformation Process

FORMAT

These learning elemtnts provide instructor input and large group discussions, readings and individual exercises, simulations using small teams, and slides and audiotape lessons. Criteria are provided for evaluation of the student's final product.